

Lessons from Germany and the Future of Vocational Education

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Introduction

The question of what schools might teach about the global economy is no longer a singular question. The more relevant question is how schools can develop curricula and instructional strategies that will keep pace with the rapidly changing needs of a global community for today, tomorrow, and into the future. Strategies for innovation, problem-solving, critical thinking, and global understanding have been identified as some of the most important considerations in how we address education and workforce preparation but the integration of such curricular goals has been elusive.

As graduates of today are facing global competition on a far greater scale than ever before in history, civic unrest and geopolitical struggles continue to plague the efforts of world economies in maintaining social and political stability. It is clear that successful economies in the near future will be limited to those nations in which the workforce is able to respond by effectively communicating, applying knowledge, and engaging in creative problem-solving on a global scale. The students of today, as future leaders and citizens of tomorrow, will need to learn a set of skills that efficiently use our rapidly diminishing resources and effectively harness our collective intelligence in adaptation, flexibility, and creative responsiveness. These are the skills for the 21st century.

The complex issue begins with posing essential questions to stimulate the dialogue. First and foremost, how can schools prepare students for the world of work and global citizenship in a world of rapid transformational changes in technology, communications, economics, and demographics? In order to keep pace with global community issues and innovations, it makes sense to take a closer look at some of the most successful economies in the world today. Germany provides some exceptional models from which we can gain insights into career preparation responsive to changing demands, application of knowledge, and global awareness. Several lessons are worthy of consideration for potential adaptation and inspiration for on-going workforce education, preparation, and training.



Lesson 1:

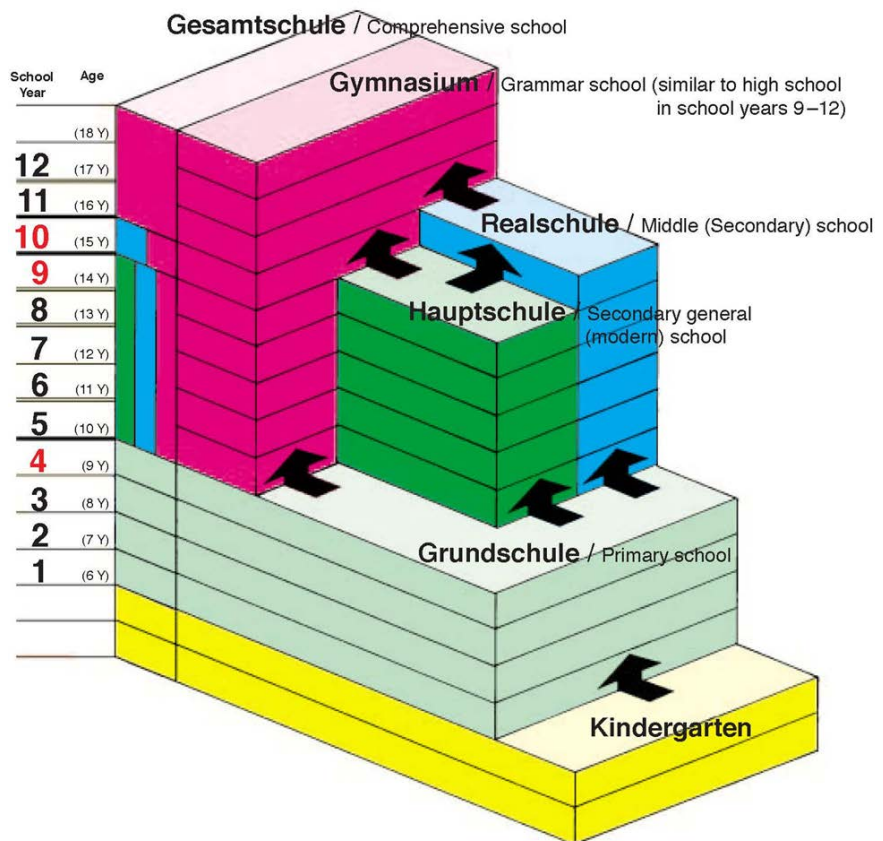
Learning from the structure of the German education system

The German education system is modeled on tracks that provide either vocational preparation or entrance to advanced university studies. Although the 16 federal states of Germany (*Länder*) have autonomy over how the logistics of the public school systems are implemented, the overall German system of public schooling is regulated at a federal level by

the *Berufsbildungsgesetz* (Vocational Training Act) of 1969. This act governs the state recognition and certification of over 350 professions as well as stipulation for the rights and regulations of trainees, such as duration of training, profiles of training, minimum requirements, compensation, overall training plan with syllabus, timeframe, and the examination requirements.

The first four years of elementary school plus the optional year of kindergarten at age 5 is very similar in structure to the elementary schools of the United States. At grade 5, students are placed in the *Hauptschule* or *Realschule* for the start of the vocational track or in the *Gymnasium* for preparation to enter the university system. Student placement is determined through teacher recommendation, parent conference, testing and academic achievement, and student aspirations.

Although aptitude tests are a part of the process, they are not the definitive variable and parental discretion is a critical factor. Most schools offer a two-year transition period to accommodate those who are unsure. In any case, the decision is not necessarily final as it has become easier in recent years to make changes over the course of the schooling program. At any point, a student may choose to go to a university and can take the appropriate entrance exams for admission. Still; however, fewer than five percent of students change from one track to another.



General secondary education for the vocational track in grades 5-10 includes the standard academic subjects of language, economics, science, and social studies but also a vocationally-oriented set of skills that relies on practical orientation such as problem-solving, technical drawing, and applied math. The school day at one school in Baden-Wurtemberg begins at 7:40 in the morning and ends at 5:15 p.m. (although this may include breaks during the day). Sport programs are managed under the purview of community organizations that meet in the evenings

or on Saturdays and are not a part of the public school system; therefore, the weekly academic program is uninterrupted and the schools strictly adhere to the scheduled instructional minutes. English is a required subject in Germany and some schools may require up to 8 years in English language studies. This is in addition to the option for study of a third foreign language, typically French or Spanish. Student exchange programs to other countries are common.



Students who enter the vocational program usually begin an apprentice program at around age 16-18, following completion of the mandatory academic program. After acceptance into a training program, the students will combine formal schooling with workplace experience for 3-4 days per week in the industry of their choosing such as business, industry, government work, or retail. Although the specifics may vary from state to state within Germany, a typical program in Baden-Wurtemberg hosts a program that allows students to work as interns in the industry of their choosing for 4 days per week. The students spend the fifth week day at school where classes support the necessary job skills. School support classes will include aspects of work such as communication skills, writing skills, workplace ethics, time management, and mathematics as related to the job. Upon completion of this program, students will have gained both the practical knowledge of the field as well as the skills necessary to move ahead. Successful completion results in a state certificate, administered by the corresponding Chamber of Industry or Chamber of Commerce, allowing students to continue to pursue a career or higher education in a given field.

Students that enter into an apprenticeship will work with a specified mentor in businesses such as Bosch, Siemens, Mercedes-Benz, Deutsche Bank, the Ministry of Tourism or other local agencies and workplaces. Although a contract is signed between the school, the employer, and the student, the school does not take on the task of placing students. Students must “market themselves” to an employer, thus maintaining a direct relationship between workplace preparation and the skills required. In this way, business and industry have an additional opportunity to monitor the level of student preparation from the schools.



Typically, students receive a small allowance for living expenses paid by the employer as part of the apprenticeship contract. The program itself ensures that students receive a broad range of skills and an overview of the full range of job responsibilities that contribute to that career path. Some examples of job-related skills include accounting, reading blueprints, calculating industrial formulas, understanding advanced manufacturing operations and maintenance, computerized operations, and many other related aspects for understanding of the overall career pathway. Students, including special education population, begin at an entry level positions, but all have the opportunity to move through the

system and advance in that field to the level of their abilities and effort, including attainment of an advanced degree.

Some of the principles on which the curriculum of the German vocational education system is based include:

- Relevant skills based on industry standards as determined by chambers of industry and commerce
- Industry partners that actively participate in the education system for the pay-off of a skilled workforce, the ability to adjust the system to meet short-term and long-term needs, flexibility and rapid-response adjustments to changes in industry, and low employee turnover.¹
- Supporting school-based curriculum for applied and transferrable knowledge
- Practical, hands-on instruction and a process-oriented curriculum²
- The option to advance to a university level job from any given industry, e.g. advancing to a mechanical engineering degree from the automobile industry.

Practical workplace training and curriculum based on industry standards is the key. As an example, an assessment for German students who are apprenticed to Mercedes Benz have a final exam in auto repair by which they use a hands-on approach to examine an automobile that has a dysfunction (as created by the instructor) and students are required not only to find and repair the problem but also to successfully invoice these repairs and communicate the situation to the customer (as represented by the instructor). This is the essence of job preparation.

In recent years, the German system has been inundated with a growing immigrant student population and the adjustments have been evolving. In some communities, the introduction of German language classes are offered to the foreign-speaking populations and assistance is offered to parents of immigrant students to help them understand how they may support their children in successful schooling. Students themselves may take advantage of additional language support classes and after-school tutoring.

The German education system is organized, planned, reviewed and revised regularly. Long-term planning maintains flexibility to adjust to changing demands. In the development of the curriculum and requirements for successful completion, industrial partners are equal partners with the Ministry of Education in determining the specific skills and the content of each vocational pathway. Although the federal system maintains a strong role in determining the specifics of the curriculum, the states can adjust implementation specifics to meet the needs of local communities.

The German system provides positive reinforcement for students who choose technical education as they begin specific training at least four years in advance of most of their American counterparts. The technical programs are highly regarded in Germany, thus avoiding the stigma of a vocationally based education as currently exists in most parts of the United States.

Lesson 2:

Developing a vocational and career preparation system responsive to existing conditions

The German vocational schooling system is driven by industry and the needs of the economy. Relevancy and job-specific skills in the German curriculum is a critically important consideration in making sure that students are prepared for the jobs of today and in anticipation of the jobs that are on the immediate horizon. To that end, the curriculum is determined by industry sectors such as automobile, technology, tourism, banking, insurance,

office administration, entrepreneurship, interstate transportation, health, government, environmental, restaurant, agriculture, and others. While the industrial partners determine the parameters of skill development, the overall training program is more than just a single set of craft or industrial skills.

The skill set is based on a broad range of competencies that include both soft and technical skills such as communications, management, problem-solving, goal development, and in-depth understanding of the overall industry sector. The industry itself, always responsive to changing demographics and trends in supply and demand, is a partner in the on-going review and



revision of curriculum, assessments, instruction, and the awarding of credentials. An example of response to changing demand was the recent addition of a new career pathway in Baden-Wurtemberg schools of “mechatronics,” a merging of mechanical knowledge and technology.³

The German system also maintains a greater amount of flexibility than might initially appear. Students may choose to change tracks or career directions at any point in their schooling and university admission is always an option for those who qualify. The advantage choosing a track early in their education is that students will have definitive goals and clear objectives to master as they gain the knowledge, skills, and dispositions as a contributing member of society.

The on-going communication with industrial partners and attention to economic conditions help to maintain a dynamic vitality in the education system that values relevancy and application of knowledge. In place of the development of general skills that the typical American system fosters throughout the K-16 system, the German system addresses skills in the context of specific career and citizenship competencies.

Lesson 3:

Acknowledging the need for understanding on how to function in a global economic system

The explosion of global telecommunications, geopolitical events, and the interrelationships of global markets has brought the issue of global awareness and intercultural preparedness to the forefront. The issues at stake no longer provide international leaders the luxury of maintaining an insular outlook. Global stability in markets, political change, and cultural adaptation require increasingly improved systems of

communication, diplomacy, and creative problem-solving. The skills of the 21st century are the centerpiece of revitalizing education through relevancy, creative problem-solving, and student engagement. The “Four Cs” of the framework for skills for the 21st century include:

- Effective communication
- Critical thinking and problem-solving
- Collaboration and team work, and
- Creativity and Innovation.⁴

Career and vocational education systems that utilize existing industrial and business structures to educate students with real-life skills and application of knowledge can also motivate students to develop appropriate workplace ethics, career goals, and values that nurture respect, equality, and social justice. Workplace-based education provides context for the development of global awareness, cultural sensitivity, an understanding of the interconnectedness of the countries of the world today, and the limitations of the planet’s resources.

Lesson 4:

Building Capacity for Cultural and Multi-lingual Competencies

Success in the global enterprise requires participants to be literate in cultural, economic, and geographic understanding but now, more than ever, effective communication in more than one language is considered an essential skill. Intercultural learning based on a solid foundation of

history, geopolitical, and economic knowledge is enhanced exponentially when the language of a given culture is acquired. In today’s diverse multi-lingual environment, successful negotiation of business, government, political, and social relationships rely on the interplay of cultural understanding and world language proficiencies. Research supports the inclusion of intercultural language acquisition as a means to gain greater usage of higher-order thinking skills, problem-solving, and reasoning.⁵

While German students typically learn English throughout most of their schooling years, it is common to find students learning an additional language to become tri-lingual. German students in some vocational or university pathways often learn the basics of 3 or 4 world languages.



As the curriculum for students in the United States becomes more focused on real-life skills, as demonstrated in the common core standards, it is an appropriate opportunity to update the requirements for students in the 21st century. Certainly, cultural understanding and world language literacy will strengthen the competencies of collaboration, communication, creative thinking, and problem-solving. “America’s continued global leadership will depend on our students’ abilities to interact with the world community both inside and outside our borders.”⁶ For this reason, it is shortsighted to think that our students can continue to end their formal education as monolinguals.

Goals for working toward global understanding and multicultural competency would indicate that students fulfill an educational requirement to become conversationally proficient (or functionally conversant) in at least one language other than English. To take optimum advantage of the cognitive benefits, language learning should begin at the earliest possible elementary grade level and start no later than in middle school grades.

Lesson 5:

Building public support for an educational system that is coherent, relevant and sustainable in the world today

While the German education system is based on concrete, job-specific training and 21st century skills, the American education system is still struggling to engage students who frequently believe that the curriculum they are taught is irrelevant and outdated. As schools across the United States

attempt to imbue teaching with real life skills and application of knowledge through 21st Century skills and the Common Core Standards, perhaps the time has come to examine the relationship of vocational education and the concept of college preparation. It is no surprise that the United States harbors a stigma regarding vocational education in comparison to university preparatory classes.⁷



In contrast, Germany has effectively cultivated respect for the labor professions through recognition of successful completion of training and appropriate pay. While the United States has created a two-tiered system, the German model appears to be successfully negotiating educational tracks that are different but equally respected.

In order to maintain the coherence and stability necessary to build a viable system of workforce preparation and global understanding, support at a federal level is necessary. The United States has taken a first step in developing Common Core Standards⁸ that focus on practical, innovative, and real-life applications of knowledge but national leadership is needed to provide guidance for a system that is relatively comparable and transferable across states. The critical elements of 21st century skills can be the guiding principle in development of a coherent, relevant curriculum that provides skills for future leaders and the workforce of decades to come. Most of all, it is not unreasonable to think that the

connection of career skills with schooling, citizenship education, and global understanding would not make for a more stable future.

Implications & Recommendations for education in the United States

Although the United States would have a very difficult process, if not impossible, in adopting the German education system outright, there are some important

considerations in why educators might examine successful systems in other countries.

1. The learning in Germany is clearly a “content integrated learning” system⁹ that incorporates problem-solving and applied knowledge as the focus of vocational and career prep education. In reviewing and re-visioning the education systems in the United States today, it will be helpful to reference the skills for the 21st century¹⁰ and develop successful strategies for student engagement, relevancy, and real-life challenges such as problem-solving, collaboration, and presentation. The comparatively low scores of the United States on international academic tests are an indication of the need to re-examine what we are teaching, how we are teaching, and why we are teaching the current curricula. It is important that curriculum goals and objectives are examined on a regular basis without the baggage of doing what we have always done out of habit, tradition, or unwillingness to move forward.

RECOMMENDATION: *Develop a national task force involving industry partners, businesses, chambers of commerce, organized labor, education specialists, and government career professionals to use the Common Core Standards, Skills for the 21st Century, and College and Career Readiness standards¹¹ to produce an educational blueprint for schools that addresses current and future workforce needs.*

2. It would be of benefit to raise the profile of all types of education in the United States and to eliminate the hierarchy of college vs. vocational education. The curriculum should provide a clear choice for students to pursue careers that are technical and skill-oriented in nature that may or may not include college or university.¹² It is important to ensure that students who leave high school are career-ready as well as college-ready and we need to actively work to remove the stigma of blue-collar jobs as low-level jobs and “dead-end” jobs. An emphasis on options for post-secondary and advanced degrees, regardless of career pathway, should be communicated to all stakeholders.

RECOMMENDATION: *Begin to work with elementary, secondary, and post-secondary schools to develop a campaign to raise the status of career preparation programs through enhanced skill levels and establish high-profile recognition programs for students who successfully complete structured vocational education/apprenticeship-style programs.*

3. There is a need to build an accountability system that holds students as well as teachers accountable through performance assessment and academic assessment. In the United States, we are testing often and systematically but, most often it is the teaching staff that feels the pressure and not the students.¹³ Providing students with tangible benefits such as apprenticeships and promising career tracks may help to increase student motivation.

RECOMMENDATION: *Build an assessment system based on national career and vocational education standards that includes performance assessments, site-specific applied-knowledge assessments, critical thinking skills, real-world assessments, and individual student evaluations to provide tangible rewards that lead toward gateway careers.*

4. Global studies prepare students for international commerce, communications, and cooperation. The need to promote learning that incorporates multiple perspectives, global understandings, and cultural awareness has never been more urgent than today. Foreign language as a required subject, increased emphasis on global studies, and attention to current events in geopolitical and economic conditions will bring education into the 21st century.

RECOMMENDATION: *Strengthen global studies and social studies education through rigorous standards and assessments for all grade levels, kindergarten through grade 12. In addition, schools should consider development of foreign language instruction at the elementary and middle school levels and require a goal of basic user proficiency in at least one foreign language for high school graduation. Foreign exchange programs for students should be supported and encouraged.*

5. A national effort to improve teacher preparation programs that help prospective educators learn about career and technical education as a viable means to preparing students for future roles as leaders, citizens, and productive workers in the local, national, and global community.

RECOMMENDATION: *Develop national teacher preparation standards that require understanding of career and technical standards, global studies, civic education, and skill development with encouragement and support for foreign studies and travel.*

END NOTES

¹ (Becker, 2012)

² (Hartmann, 2012)

³ (Becker, 2012)

⁴ (Partnership for 21st Century Skills, 2012)

⁵ (Moloney & Harbon, 2010)

⁶ (Committee for Economic Development, 2006)

⁷ (National Public Radio, 2012)

⁸ (Common Core State Standards Initiative, 2012)

⁹ (Gifford, 2012)

¹⁰ (Partnership for 21st Century Skills, 2012)

¹¹ (College and Career Readiness Standards, 2012)

¹² (Kenney, 2012)

¹³ (Kenney, 2012)



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Additional Resources

German Federal Institute for Vocational Education:

<http://www.bibb.de/en/index.htm>

TOP Tour presentations:

http://www.toponline.org/xfer/vocational_training_de.zip

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TOP aims to facilitate Education, Dialogue, and Experience. TOP encourages cross-cultural dialogue and provides North American social studies educators with global understanding via curriculum, teacher training, and study tours that utilize Modern Germany as the basis for comparison and contrast. More information about TOP can be found at www.goethe.de/top.