

Evaluating the curriculum of vocational schools in Vietnam

Tuan Van Nguyen¹, Ha Thi Thu Le^{2*}, Hung Thanh Nguyen³

¹Center of Professional Research and Development, Ha Noi Metropolitan University, Hanoi, Vietnam. ²Faculty of Psychology and Education, Hong Duc University, Thanh Hoa Province, Vietnam. ³Department of Psychology and Education, University of Education, Hue University, Thua Thien Hue Province, Vietnam.

Correspondence: Ha Thi Thu Le, Faculty of Psychology and Education, Hong Duc University, Thanh Hoa Province, Vietnam. lethithuha@hdu.edu.vn; lethithuha2013gdh@gmail.com

ABSTRACT

When evaluating the overall quality of a school's training system, and more especially the quality of its teaching, one of the most significant factors to evaluate is the curriculum offered by the institution. This is cross-sectional research, and the data for it was gathered through a survey of vocational schools in the Northern area of Vietnam, with particular attention paid to students' real practice time and accomplishment outcomes throughout the educational process. Five hundred seventy participants took part in this survey, including 195 lecturers, 125 technicians, and 250 graduates, among those who took part in the research. They were asked to respond to 13 questions concerning their perspectives on the curriculum at vocational schools. The results showed that students' real practice time at vocational schools is insufficient. They are only valued in specialized knowledge, extracurricular activities, and communication skills rather than in other sectors. This research has provided an overview of the existing conditions of the curriculum in Vietnam in general and in the Northern area, enabling the development of a suitable plan for developing a new curriculum in the country's northern region.

Keywords: Curriculum, Vocational schools, Educational accomplishments, Actual practice time, Vietnam

Introduction

A vocational school is a semi-educational organization that offers a variety of training opportunities. According to the mission statement, a teaching facility, earning activities, and providing apprentices with the appropriate professional knowledge, abilities, and attitudes [1]. Based on Sezgin's (2000) research, the primary goal of vocational and technical education is to provide students with the fundamental behaviors that will enable them to obtain a recognized and acceptable profession in the business world [2]. Glasser (1969) emphasizes that when it comes to successful schools and nations, there will be no meaningful contribution to resolving the country's fundamental issues unless it is feasible to evaluate what is appropriate for children and shape their success in the manner that is appropriate for children [3]. It

is also important to consider how students' interests and talents align with vocational schools, why students choose these institutions, and how extracurricular activities are incorporated to help vocational schools grow in terms of the professional development of students. To summarize, educating competent and adaptable personnel is a pedagogical requirement [4].

It is the responsibility of vocational schools' curriculums in Vietnam to ensure not only compliance with the framework program's standards for each training level but also the inclusion of the 30 percent soft-skills training program that vocational schools are permitted to offer to supplement the material. The informational content was relevant to the training major, as well as the abilities required by the workplace and by the learners themselves. Furthermore, the educational method was originally designed to help students develop professional attitudes, industrial manners, and the ability to work in groups [1]. Schools create training programs for each occupation based on the framework program, selecting 30 percent of the information and skills listed in the framework program to include in their programs. Vocational training schools customize knowledge and skills to meet the specific needs of the industry and the region's workforce. Nevertheless, according to a study of vocational training institutions, vocational training institutions pay little attention to soft-skills training programs and instead concentrate

Access this article online

Website: www.japer.in

E-ISSN: 2249-3379

How to cite this article: Nguyen TV, Le HTT, Nguyen HT. Evaluating the Curriculum of Vocational Schools in Vietnam. *J Adv Pharm Educ Res.* 2022;12(2):57-62. <https://doi.org/10.51847/WTZY0ID6Es>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

on compiling and teaching according to the fraction of topics that account for a large percentage of the total. When it comes to teaching, the program spends far too much time on theory and far too little time on practice and practice for students, as evidenced by the fact that 70% of the hardware complies with state laws. As a result of this, the vocational training program has not yet established stringent output requirements for vocational training levels to ensure that the curriculum meets the needs of society's employers [5]. Because the primary goal of vocational education is to develop human resources who will be actively involved in the manufacturing process, it is also known as technical education. As a result, integrated teaching represents a paradigm shift in educational innovation, representing a shift away from a content-based approach toward a competency-based approach to learning. It not only provides learners with the necessary abilities for professional practice, but it also provides learners with the opportunity to choose a vocation that is a good match for their abilities [6].

Vocational education in collaboration with employers' institutions, also known as the dual system in Germany, accounts for 60 percent of all teaching methods and is the most widely used model of vocational education in the country. It has created conditions in which students can explain, consolidate, and develop highly specialized knowledge and skills as a result of the way this approach organizes theoretical instruction in the classroom and practical learning in the workplace in tandem [7]. Recently, the German Dual System has received a great deal of attention since several nations, particularly in Southern Europe, are attempting to establish concepts of structured apprenticeships leading to basic vocational qualifications that are similar to the German model. There is clear anticipation among legislators in particular that such a system will aid in the resolution of integration issues faced by school leavers into the vocational education and training (VET) sector as well as the battling of youth unemployment. However, taking into consideration what has already been said about the characteristics of the German Dual System, it should be noted that even a vocational training system that closely resembled the pattern of German apprenticeship would most likely function in a different way and have different consequences when transplanted to another country due to cultural and historical reasons. This has been demonstrated by several studies that have looked into the implementation of the Dual System in emerging nations [8, 9]. Aside from this, Norway is recognized as having various sophisticated vocational training models, some of which are currently in use, such as the 2+2 model, which consists of two years of formal schooling followed by a period of practical economics training in the workplace for two years. Additionally, they employ flexible methodologies such as model 1 + 3 (one year of theory followed by three years of practice) or model 0 + 4 (four years of practice), which are effective in previous studies. On the subject of education and vocational training, this country performs quite well. Practical skill training in higher education centers based on educational curricula had taken on a new significance [10]. Training in areas such as communication skills should be continued after students graduate [11]. Professionalism

with a high moral character should be instilled in students from the start of their education [12].

Starting on August 1, 2010, vocational education programs in the Netherlands and other developed Western countries must be competency-based, as mandated by the European Commission. As a result, theoretical and practical instruction is no longer delivered in the traditional manner of the past. Internships and job simulations are gradually taking their place, and these are referred to as "workplace simulations" (WPS). With a genuine school-based learning environment that attracts, inspires, and pushes students to obtain career-relevant information, (learning) skills, and attitudes, WPS is a true learning environment. According to the principle, students are expected to work independently and take responsibility for their education [13, 14].

In their study on significant teaching, learning, and assessment issues in VET, Mitchell *et al.* (2005) found that "quality is the most essential issue." This finding is supported by other research. Researchers have raised many issues, such as the need for suppliers to become more flexible and responsive to meet the wide range of needs of industry customers and individual students. However, in the end, the majority of parties want high-quality teaching, learning, and assessment that results in benefits for individuals, businesses, and entire countries. A recent study found that governments across Australia, England, and Scotland agree that a vibrant, high-quality VET sector is required. This sector must be capable of responding rapidly to new skills requirements, changing labor market conditions, new learning contexts, and rising customer expectations. Increasing the quality of teaching, learning, and assessment practice are crucial if the sector is to respond to new problems, as these governments have well documented [15].

Those extracurricular activities that students participate indirectly or indirectly both inside and outside of school, to reinforce and complement the curriculum, are defined in the curriculum as those in which students engage directly or indirectly both inside and outside of school [16]. Seminars, lectures, technical visits, and career orientation activities are examples of the kind of social, cultural, and professional events that are arranged throughout the year. It has been demonstrated time and time again that extracurricular activities assist children in developing particular abilities, and that these abilities are readily visible through participation in these activities [17-23]. These activities, which are particularly beneficial for the career development of vocational high school students, are also essential in secondary vocational programs because they assist students in developing a stronger connection to their professional identities in the professions sector in which they will be employed. In addition, these activities help students develop a stronger connection to their professional identities in the sector in which they will be employed [16].

The ability of students to learn on their own is also an important consideration in the development of educational programs. According to Loyens *et al.* (2008), self-directed learning is defined as the ability of a self-directed learner to also self-regulate, whereas a self-regulating learner is not self-directed at

all [24]. Providing opportunities for children to practice self-direction, on the other hand, may aid them in improving their ability to regulate their emotions. Students require opportunities to practice and improve their abilities (for example, while doing homework or studying) [25]. There are many different perspectives on self-study, and scientists with various interests are trying to figure out how cognitive, cognitive-affective, motivational, and environmental factors influence the learning process [26-28]. Students are automated, according to Zimmerman (1989), "to the extent that they are cognitively, motivationally, and behaviorally active participants in their learning process [29]." This is a term that is based on social cognitive theory. According to this idea, human learning takes place in a social context and is influenced by the interaction of individual influences, behavior, and the environment [5, 30]. Zimmerman (2000a, 2006) proposes three key phases and sub-processes of behavioral, environmental, and covert self-regulation: initiation, maintenance, and termination [31, 32]. It has been demonstrated that there are quantitative and qualitative differences in the procedures and activities required between more and less proficient learners [33, 34].

Furthermore, several studies have revealed a significant gap across nations in terms of technical credentials and qualifications of the direct production workforce (production processes, trade, and technician jobs, for example). A considerably greater proportion of direct manufacturing workers in the United Kingdom do not hold university degrees. Those who do hold recognized certificates perform at a lower level on average than their counterparts in the rest of the world. Europe. According to the research, this mismatch is due to the difference in international capacity between the UK and European enterprises in the manufacturing sector, which may range from 0 to 100 percent in some cases; in the building industry, a differential of 37 percent was discovered [35]. To convey national variations in the quality and quantity of trained workforce created at VET to the other between the national family concerning energy, quality, and change several aspects have been identified and defined.

Through their schools' guidance, all students should have real-world work experience in a variety of settings throughout their school careers. Although cooperative educational agreements with industry have been a cornerstone of conventional vocational education in the United States for decades, they are not mandatory for all students [36]. The students' work experience in the industry would be incorporated into a program of study, with specific objectives to be met by the students. Students might spend part of their free time working on real-world projects. They can participate in work shadowing opportunities. They will get the opportunity to watch an interview with excellent adult employees. They have the option of speaking with management or with labor representatives. Journaling, contemplation, and report writing are examples of additional components of the experience that may be included. The logic for this is that learning outside of school is distinct from learning inside of school [37]. In this course, students learn how to apply classroom information while also getting firsthand views of what the real

world has in store for them when they finally enter the labor market, this time on their initiative. Having job experience while in school has been shown to result in more favorable school-related attitudes and behaviors, such as less tardiness, fewer days missing, and improved academic achievement, according to some research [38].

This context is likely to relate to a shared curriculum of fundamental skills. However, the structure of competencies within VET is more variable in content and, as a result, has the potential to be more complicated than compulsory education. As a result, VET content is variable throughout countries, but it is also heterogeneous among various professions within countries [39] and even inside individual workplaces [40]. Up until the current time, however, there has been minimal research on the evaluation of study programs at vocational schools in Vietnam. In our objective study, we evaluated the relevance of the curriculum in connection to the implementation time and the results of vocational school teaching in Vietnam based on the evaluations of the lecturers, the instructors, and the students. Technicians and graduate students are among those who work in the field.

Materials and Methods

Participant

Participants were randomly selected from four provinces in northern Vietnam. All participants provided informed consent after being informed of the research's purpose. The survey instrument was distributed to 570 lecturers, technicians, and graduates, including 195 lecturers in vocational schools offering training in electricity and welding, 125 managers and technicians in firms and corporations that specialize in electricity and welding, and 250 graduates who work in firms and corporations.

Measurement

The questionnaire was designed to poll academics, technicians, and graduates from vocational schools and representatives from businesses and enterprises in four northern Vietnamese provinces. To begin, social-demographic categories were added to the survey questionnaire. The instrument is divided into two parts: Part I contains questions about assessing the actual practice time in a curriculum by lecturers and technicians, and participants respond on a four-point scale from "not enough" to "enough"; Part II contains questions about assessing the assessment of lecturers, technicians, and graduates in the dimension of the quality of vocational school education, and participants respond on a five-point scale from "poor" to "excellent."

Procedure

Before taking part in the study, participants were asked to give their informed consent and explain the study's objectives. Participants are asked to complete the General Information form at the start of the session, including their gender, age, workplace,

department, position, and qualification information. Following that, survey lecturers, technicians, and graduates were introduced to the scale's instructions for them to grasp the questionnaire.

Results and Discussion

Lecturers and technicians assessed that the actual practice time in a curriculum was shown in **Table 1**.

Table 1. Evaluation of the actual practice time in a curriculum by lecturers and technicians.

Level	n	%
Not enough	228	71.3
Temporary enough	54	16.7
Enough	38	12
Neutral	0	0
Total	320	100

The result showed that 71.3% (n=228) of lecturers and technicians assumed that there was enough actual practice time in a curriculum, 16.7% (n=54) saw that it was temporary enough, and 12% (n=38) regarded it was enough.

Table 2. Assessing the educational accomplishments of vocational schools from the perspective of lecturers, technicians, and graduates.

	Level				
	Poor	Weak	Average	Good	Excellent
Specialized knowledge	0.67	6.85	33.90	55.16	3.42
Practice skills	6.50	31.47	53.12	7.44	1.47
Access to the use of modern technology and equipment	3.00	33.08	50.68	11.03	2.21
Capacity to think critically and solve problems	0.68	15.07	54.11	27.40	2.74
Collaboration and teamwork skills	2.80	32.87	46.15	16.78	1.40
Self-study ability	4.27	32.36	49.10	14.27	0.00
Extracurricular Activities and communication skills	0.00	12.41	50.35	35.17	2.07
Informatics skill	2.58	22.35	49.38	24.99	0.70
Language skill	5.86	23.86	42.42	27.86	0,00
Professional behavior	3.67	18.34	60.80	16.50	0.69
Professional attitude	0.69	25.97	49.62	20.07	3.65
Health status	0.00	10.30	38.50	50.38	0.82

A few aspects of content with three levels (from average to excellent) are as follows: "Specialized knowledge" with 33.90% (average), 55.16% (good), 3.42 % (excellent); followed by "Extracurricular Activities and communication skills" with 50.35% (average), 35.17% (good), 2,07% (excellent). However, there were a few instances of content with poor and weak scores, as follows: "Practice skills" with 6.5% (poor), 31.47% (weak); followed by "Access to the use of modern technology and equipment" with 3% (poor), 33.08% (weak);

and "Self-regulated learning ability" with 4.27% (poor), 32.36% (weak).

Specifically, the goal of this study was to find out how lecturers, technicians, and graduates view real practice time in a curriculum and student accomplishment in the course of a vocational school's teaching process. In conclusion, real practice time in vocational schools is insufficient for students' learning. While the majority of educational accomplishment themes are rated as average or above, certain things such as practice skills, language skills, and self-study ability continue to be rated as poor or below average. Our findings indicate that students' ability to apply their knowledge on the job is limited by the amount of practical practice time provided in a curriculum. Following the introduction of the state's strict framework, teachers only concentrate on the Teaching framework, concentrating on theory but being constrained in their ability to use their knowledge in practice [5]. According to Ogg and Kollaard (2001), students in vocational education should be referred to as "apprentices," meaning that simply learning theory is insufficient for these students to relate and apply theory to context [41]. The WPS curriculum places a strong emphasis on hands-on learning experiences. Active engagement or learning by doing in other contexts (for example, medical education) is compatible with research in other domains (for example, medical education) according to student perspectives [42]. For students to get practical skills and hands-on experience in the subject of study that they are studying, they must have the opportunity to do so. Our research discovered that although the kids were involved in extracurricular activities and possessed good communication abilities, they did not provide much support for the development of these abilities (6.5 percent poor). According to the data, extracurricular activities have not been proved to be significantly aided by vocational training in a significant manner. According to the findings of Balyer & Gunduz (2012). They demonstrated that these activities, which may be particularly beneficial to vocational high school students, in particular, are also necessary for strengthening the relationship between students and their professional identities in the areas where work is done in vocational high school programs, as demonstrated by their findings. Workshops, seminars, technical visits, and other similar activities that are organized for social, cultural, and professional purposes are examples of this type of activity. In other words, theory and practice may be used in conjunction with one another. Extracurricular activities have not received appropriate support from vocational training programs [43]. A lack of abilities to execute the trade has also resulted in a huge number of students graduating from vocational schools being forced to do the polar opposite of what they have learned in their training programs [44].

This result indicated that regulating one's learning was limited. However, there are some disadvantages to taking this approach. One limitation is identified in this case: the sampling technique, which was conducted in four different regions of northern Vietnam, may have limited the generalization of the results to other lecturers, technicians, and graduates in the future. Consequently, the study should be broadened to include a larger

number of participants from other regions of Vietnam to conduct future research in those areas. This study had several limitations, including the issue of sampling and the use of self-reported measurements, both of which contribute to bias in the findings and the fact that it was a cross-sectional analysis, which did not allow us to obtain correct results.

Large organizations and firms are increasingly specialized and complicated, and traditional on-the-job training practices are becoming less effective as a result of this trend. So more skilled occupations have become more important, and the existing skill requirements have been boosted to satisfy the new requirements. Machlup (1970) and Trow (1961) argue that the demand for skilled workers created by industrialization prompted the establishment of education that could provide training and skills for a technically capable workforce [45]. Machlup (1970) and Trow (1961) argue that the demand for skilled workers produced by industrialization prompted the establishment of education that could provide training and skills for a technically capable workforce. As a result, because the need for skilled labor increases the individual return on investment in vocational education, the collective demand for this type of education increases [46]. In addition, research by Ashton and Green (1996) has revealed that the skill balance between "high-skill" and "low-skill" produced from the curriculum in vocational schools is connected to policies of the state and the general public [47]. As the authors point out, the models range in their ability to maintain a balance of high skills; some are dependent on the active engagement of the state, others are dependent on the social partnership structure of this or that country; other modes have also been recognized as being relevant. A low skill balance, for example, maybe seen in the United Kingdom, whereas Japan and most of the Nordic nations have a high skill balance, and the United States has a combination of both.

When it comes to addressing the issue in our study, vocational schools must collaborate to develop an output-driven practical curriculum and a practical training plan that is appropriate for the vocational school and its user base labor. Also important is the development of teachers' technical and professional knowledge and their knowledge and skills in vocational training. It is also important to develop the pedagogical abilities of companies' vocational training personnel.

Conclusion

Our findings showed that soft-skills training programs are rarely paid attention to by vocational training institutions but only focus on compiling and teaching by subjects, accounting for 70% hardware according to state regulations, so when put into teaching, the program takes up too much time on teaching theory and less time on teaching practice and practice for students. On the other hand, the vocational training program has not yet established strict output standards for vocational training levels, ensuring that the curriculum meets the needs of society's employers.

Acknowledgments: The authors acknowledge the undergraduate students in Vietnam, who had supported us in gathering the field data for this research.

Conflict of interest: None

Financial support: None

Ethics statement: This study was conducted in accordance with the ethical principles of the declaration of Helsinki. The study was approved by the Ethics Committee of the Department of Science and Technology - Thai Nguyen University (under the Vietnamese MoET) with the number 62.14.01.02.

References

1. MOLISA, Law on Labor and Law on Vocational Training. Hanoi: Labor - Social Publishing House, 2007.
2. Sezgin SI. Mesleki ve teknik eđitimde program geliřtirme. Nobel; 2000.
3. Glasser W. Schools without failure. 1969.
4. Achtenhagen F, Oldenburger HA. Goals for further vocational education and training: The view of employees and the view of superiors. *Int J Educ Res.* 1996;25(5):387-401.
5. Chau HN. Basic issues of curriculum and teaching process. Hanoi: Education Publishing House. 2006.
6. Vaz G. Integrating Vocational Education with Academic Education in Commonwealth Open School. In: Commonwealth of Learning (COL). 2012.
7. Roth G. Distributing leadership practices for lean transformation. *Reflections.* 2006;7(2):15-29.
8. Euler D. Die deutsche Berufsausbildung-ein Exportschlager oder eine Reformbaustelle?. *Z Berufs Wirtsch pädag.* 2013;109(3):321-31.
9. Schaack K. Die Exportierbarkeit des dualen systems. *Strategien der internationalen Berufsbildung. Ausgewahlte Aspekte.* 1997:197-233.
10. Raheleh N, Mohammad J, Peyman H. Comparison of efficacy of defibrillation education with lecture and simulation techniques for interns of emergency department of Hazrat-E- Rasoul hospital in 2015. *Int J Pharm Phytopharmacol Res.* 2020;10(3):92-8.
11. Taghizadeh R, Hasanpour-Dehkordi A, Shakhacai S, Motaarefi H. The effects of teaching communication skills to nursing students on the quality of care for patients. *Pharmacophore.* 2017;8(6s):1-4.
12. Salam A, Yousuf R, Islam MZ, Yesmin F, Helali AM, Alattraqchi AG, et al. Professionalism of future medical professionals in Universiti Sultan Zainal Abidin, Malaysia. *Bangladesh J Pharmacol.* 2013;8(2):124-30.
13. Teurlings CC, Van der Sanden JM. De werkplek als leeromgeving: het leren in stages. *Op de Student Gericht-*

- een bundel opstellen over leren en studeren, opgedragen aan Prof. Dr. Len. FW de Klerk. 1999:171-88.
14. Vrieze G, van Kuijk J, van Kessel N. Naar aantrekkelijk beroepsopleiding met WPS. ITS. 2001.
 15. Mitchell J, Chappell C, Bateman A, Roy S. Quality Is the Key: Critical Issues in Teaching, Learning, and Assessment in Vocational Education and Training. ERIC. 2006.
 16. Balyer A, Gunduz Y. Effects of structured extracurricular facilities on students' academic and social development. *Procedia Soc Behav Sci.* 2012;46:4803-7.
 17. Logan WL, Scarborough JL. Connections through clubs: Collaboration and coordination of a schoolwide program. *Prof Sch Couns.* 2008;12(2):2156759X0801200212.
 18. Fredricks JA, Eccles JS. Extracurricular involvement and adolescent adjustment: Impact of duration, number of activities, and breadth of participation. *Appl Dev Sci.* 2006;10(3):132-46.
 19. Wylie C. Leisure activities and adolescent engagement in school learning. In Paper presented at the New Zealand Association for Research in Education (NZARE) conference. Dunedin. 2005;6:9.
 20. Lewis CP. The relation between extracurricular activities with academic and social competencies in school-age children: A meta-analysis. Texas A&M University; 2004.
 21. Mahoney JL, Schweder AE, Stattin H. Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. *J Community Psychol.* 2002;30(1):69-86.
 22. Eccles JS, Barber BL. Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters?. *J Adolesc Res.* 1999;14(1):10-43.
 23. Marsh HW. Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals?. *J Educ Psychol.* 1992;84(4):553.
 24. Loyens SM, Magda J, Rikers RM. Self-directed learning in problem-based learning and its relationships with self-regulated learning. *Educ Psychol Rev.* 2008;20(4):411-27.
 25. Zimmerman BJ. Developing self-fulfilling cycles of academic regulation: an analysis of exemplary instructional models. In D. H. Schunk, & B. J. Zimmerman (Eds.), *Self-Regulated Learning: From Teaching to Self-Reflective Practice* 1998 (pp. 1-19). New York, NY: Guilford Press.
 26. Boekaerts M. Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. *Learn Instruct.* 1997;7(2):161-86.
 27. Pintrich PR. A motivational science perspective on the role of student motivation in learning and teaching contexts. *J Educ Psychol.* 2003;95(4):667.
 28. Zimmerman BJ. Becoming a self-regulated learner: An overview. *Theory Pract.* 2002;41(2):64-70.
 29. Zimmerman BJ. A social cognitive view of self-regulated academic learning. *J Educ Psychol.* 1989;81(3):329.
 30. Bandura A. Social cognitive theory. In R. Vasta (Ed.), *Annals of child development.* Vol. 6. Six theories of child development (pp. 1-60). Greenwich, CT: JAI Press; 1989.
 31. Zimmerman BJ. Attaining self-regulation: A social cognitive perspective. In *Handbook of self-regulation* 2000 Jan 1 (pp. 13-39). Academic press.
 32. Zimmerman BJ. Development and adaptation of expertise: The role of self-regulatory processes and beliefs. 2006.
 33. De Jong F, Kollöffel B, van der Meijden H, Staarman JK, Janssen J. Regulatory processes in individual, 3D and computer supported cooperative learning contexts. *Comput Human Behav.* 2005;21(4):645-70.
 34. Schunk DH, Zimmerman BJ, editors. *Self-regulated learning: From teaching to self-reflective practice.* Guilford Press; 1998.
 35. Clarke L, Winch C. *Vocational education: International approaches, developments and systems.* Routledge; 2012.
 36. US General Accounting Office. *Transition from school to work: Linking education and worksite training.* In: Government Printing Office Washington, DC. 1991.
 37. Resnick LB. The 1987 presidential address learning in school and out. *Educ Res.* 1987;16(9):13-54.
 38. Mortimer JT, Shanahan M, Ryu S. The effects of adolescent employment on school-related orientation and behavior. *Adolescence in context: The interplay of family, school, peers, and work in adjustment.* 1994:304-26.
 39. Baethge M, Arends L, Winther E. International large-scale assessment on vocational and occupational education and training. In *VET boost: towards a theory of professional competencies* 2009 Jan 1 (pp. 1-24). Brill Sense.
 40. Billett S. *Work, change, and workers.* Springer. 2006.
 41. Ogg F, Kollaard L. Oriëntatie op leren met werkpleksimulatie (Deel 1)[Orientation on learning with workplace simulation (Part 1)]. s Hertogenbosch, the Netherlands: KPC Groep. 2001.
 42. Wagenaar A, Scherpbier AJ, Boshuizen HP, Van der Vleuten CP. The importance of active involvement in learning: A qualitative study on learning results and learning processes in different traineeships. *Adv Health Sci Educ.* 2003;8(3):201-12.
 43. Altan BA, Altintas HO. Professional Identities of Vocational High School Students and Extracurricular Activities. *J Educ Train Stud.* 2017;5(7):46-52.
 44. Psacharopoulos G, Loxley WA. *Diversified secondary education and development: Evidence from Colombia and Tanzania.* Published for the World Bank; 1985.
 45. Machlup F. *Education and economic growth.* Lincoln, Nebraska: University of Nebraska Press; 1970.
 46. Schultz TW. *Education and economic growth.* *Teach Coll Rec.* 1961;62(10):46-88.
 47. Ashton D, Green F. *Education, training and the global economy.* Cheltenham: Edward Elgar; 1996.