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The Readiness of Universitas Negeri Medan to Deal with the Industrial Revolution 4.0

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Abstract. Industrial Revolution 4.0 has urged the higher education to change the way they work. Changes in the form of work indeed require the readiness of infrastructure and human resources. To address these challenges, Universitas Negeri Medan (Unimed), Indonesia, has developed an integrated learning information system to facilitate learning in the digital era. However, the next challenge is to prepare human resources who will use the information system to optimize learning activities. Therefore, this study aims to map Unimed's human resource readiness to carry out learning in the industrial revolution era 4.0. The subject of this study was an active lecturer at the state public university. With random sampling, this study received 158 samples from 7 Faculties in Unimed. Furthermore, the data were analyzed by descriptive statistics to review the competency of using IT for educational and research activities held by lecturers. The results of this study indicate that human resources in Unimed have high readiness and potential in the implementation of digital learning. Policymakers can synchronize competencies and specific needs of lecturers related to their field of work with the SI that has been developed.

Keywords: Readiness, Lecturer, Digital Era, Higher Education; Industrial Revolution

1 Introduction

Industrial revolution 4.0 has changed the way people work. Information technology has eliminated the boundaries between physical, distance, digital and biological elements (Schwab, 2016). This phenomenon also disrupts the way students study. Previous learning activities must be done at certain times, specific places, and with thick textbooks that have the potential to change to be very flexible with the availability of various information in hand (see: Lu and Price, 2018). Classrooms are now available anywhere, anytime, with virtually available textbooks. This change certainly brings new challenges and threats. The availability of information that is very massive if not appropriately managed will only be an advantage that is obsolete because it is not used. To anticipate the phenomenon, it is necessary to update and adjust the competence of academic personnel to meet the demands of the digital revolution. That is important because higher education is now dealing with digital natives who have adopted IT as an essential part of their daily lives (Al-Habyat et al., 2018; Prensky, 2001). However, digital natives will not have a competitive advantage if given a traditional learning approach. Because traditional learning makes digital natives unable to explore their potential, so they cannot use IT as leverage to achieve competitive advantage.

Interestingly, pedagogy in learning continues to evolve, including in the method of delivery of teaching materials, which are also being developed. Educators in higher education

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are urged to find innovative ways to restructure the class (Strayer, 2007; Bergmann & Sams, 2012) for example by organizing a flipped classroom, inverted classroom, or blended learning. Flipped teaching is seen as an innovative learning method for higher education (Steed, 2012). This method is built to be able to provide virtual learning so that it can encourage students to participate in learning at all times (Fidalgo-Blanco, Martinez-Nuñez, Borrás-Gene, & Sanchez-Medina, 2017). However, virtual learning is used to assign instructional content in preparation for attending lectures. Thus, the time available during lectures in class can be used for submitting problems, concepts, and involving students in collaborative learning (Tucker, 2012). Thus traditional learning that spends a lot of time in class for teaching theories and practices has been transformed into knowledge confirmation, debate, brainstorming, and proposing the synthesis of a problem, while theoretical and practical learning is carried out independently by students facilitated by lecturers through learning information systems. (Calimeris & Sauer, 2015; Hao, 2016; Lai & Hwang, 2016; Sohrabi & Iraj, 2016). The design will truly support student-centered learning which is needed by higher education.

To face these challenges Mohamad Nasir (Minister of Research, Technology and Higher Education of the Republic of Indonesia-Ristekdikti) explained that there are five essential elements that must be considered and will be implemented by the Ministry of Research, Technology, and Higher Education (Ristekdikti) to encourage economic growth and national competitiveness in the Industrial Revolution 4.0 (Ristekdikti.go. id, April 2018), as follow:

1. Preparation of a more innovative learning system in universities, such as: adjusting the learning curriculum, and improving students' abilities in terms of data Information Technology (IT), Operational Technology (OT), Internet of Things (IoT), and Big Data Analytic, integrating physical objects digital and human to produce competitive and skilled college graduates especially in the aspect of data literacy, technological literacy and human literacy.
2. Reconstruction of higher education institutional policies that are adaptive and responsive to the industrial revolution 4.0 in developing the transdisciplinary science and study programs needed. Also, the Cyber University program is being pursued, such as a long distance lecture system, thereby reducing the intensity of lecturer and student meetings. Cyber University is expected to be a solution for children of the nation in remote areas to reach high-quality education.
3. Preparation of human resources, especially lecturers and researchers and engineers who are responsive, adaptive and reliable to face the industrial revolution 4.0. Also, the rejuvenation of infrastructure facilities and the development of education, research, and innovation infrastructure also need to be done to support the quality of education, research, and innovation.
4. Breakthroughs in research and development that will support the Industrial Revolution 4.0 and the research and development ecosystem to improve the quality and quantity of research and development in Universities, R & D Institutions, Industry and Society
5. Breakthrough innovations and strengthening of innovation systems to increase industrial productivity and increase technology-based startup companies.

With the readiness of academic staff competencies followed by infrastructure availability, higher education will be able to transform the challenges and threats of the digital revolution into competitive opportunities and advantages. Previous research revealed that to be able to integrate IT in learning academic staff is not enough to only have IT skills, but must have IT skills that are in line with their field of work (Sun, Strobel, and Newby, 2016; Schrum, 1999). So that academic staff can genuinely use information technology for the sake of optimizing learning activities. So that, to these dynamics, universities must prepare themselves well in

developing human resources to be ready to face the learning of the digital era. Furthermore, as a university, Unimed must know the position of preparedness in meeting the industrial revolution era. Unimed can further determine the roadmap and strategies exploit the 4.0 industrial revolution into a competitive advantage. Therefore this study aims to map Unimed's human resource readiness to carry out learning in the industrial revolution era 4.0. Measuring the readiness of human resources in the implementation of learning in the digital age is a critical issue to determine the design of the professional capacity building for academic staff and can also be an essential instrument in the formation of regulations and the development of strategic decisions for university leaders (Christensen and Knezek, 2017)

2 Theoritical Framework

2.1 Industrial Revolution 4.0 and its Impact on Higher Education

History shows that the world has gone through several phases of the industrial revolution starting from the industrial revolution 1.0, 2.0, 3.0 to the industrial revolution 4.0 (Lasi et al., 2014). The industrial revolution 1.0 occurred along with the discovery of water and steam power and the mechanization of production activities that increased efficiency and the amount of production at the end of the 18th century. Furthermore, in the early 20th century, the Industrial Revolution 2.0 occurred with discoveries in the field of electricity that enabled mass production. Momentum is a stepping stone for further findings which soon led the world to achieve industrial revolution 3 with the birth of computers and production automation in the late 1970s. The 3.0 industrial revolution began to show threats to the absorption of labor in various strategic industries. Then Industry 4.0 in 2011 the German government first revealed the presence of the 4.0 industrial revolution. At the Hannover Fair which was presented by showing computerized time. Revolution 4.0 delivering humans to cyber-physical systems and internet use in various formal and non-formal human activities (Baygin et al., 2016).

For Higher Education, Industrial Revolution 4.0 has shifted the workings of higher education organizations. Nowadays, ICTs are available throughout the higher education sector and are an essential part of the institutional infrastructure. Altbach, Reisberg, and Rumbley (2009) in a 2009 UNESCO World Conference on Higher Education report explained that the presence of IT in higher education has expanded exponentially, and touched almost all dimensions of higher education. Student electronic databases, staff, and administrative records, as well as course materials and libraries, are easily accessible. The University's website allows institutions to provide a public image that can be accessed from anywhere in the world, at any time and serves as an information provider for all community members who are interested in being involved with the institution. Sources such as email, instant messaging, and social networking space provide a way for academic collaboration, joint research, and personal and professional networks. Computer laboratories offer students and staff access to hardware and software for courses and research. Continuously available wireless systems and remote-access library databases have changed the notion of time and place to work and study on campuses. Network classrooms, equipped with various audio and visual equipment, have expanded the range of material that can be introduced to students and the methods by which information and ideas can be shared.

Therefore, higher education should pay attention to ideas, human resources, competencies of students, stakeholders and industry sectors as graduate users to address technology attacks.

Thus, higher education cannot avoid the responsibility to provide ideas and actions in the transformation of the administration of higher education (Schuster et al., 2015). The availability of IT in all areas of higher education enables the implementation of computer-based learning at all times (Jeschke, 2015; Baygin et al., 2016). But more than that, real IT integration in all learning activities is not an easy matter (see: Sun, Strobel, and Newby, 2016; Schrum, 1999). Although it is well known that proper IT integration in learning can improve the quality of education (Baygin et al., 2016; Sun, Strobel, and Newby, 2016; Schrum, 1999). To be able to get this effect, academic staff must use IT in every activity in their academic life, for example in interacting with colleagues and students, providing teaching materials, providing projects, controlling student activities, discussion, assessment, conducting research, literature search, data collection, data tabulation, data analysis, dissemination, publication, to the implementation of community service (see: Baygin et al., 2016). Also, higher education must also be able to provide an established information system for the implementation of various academic tasks.

2.2 Readiness to Face Industrial Revolution 4.0

Psychological readiness is not focused on the technology because technological innovation will still be present and owned by each as Rogers et al. (2005) expressed with the terminology of innovation diffusion. The industry will force the innovation that it produces to be absorbed in the market so that diffusion occurs in innovation, including in information technology innovation (Rogers, 2005). However, how the response of IT users to the use of IT is an important issue later. The mental readiness of users in facing the technology becomes a strategic issue that must be controlled by higher education in managing the technology attack itself. Sarwono (1987) proposed attitude factors in the face of advanced technology. "Soul" and attitude are part of the individual. According to Sarwono (1987), the behavior is the basis of adjustment. In this attitude, there are cognitive, affective, and psychomotor aspects that will direct the individual's behavior to technology which then has the potential to become a behavior that is focused on the technology (Sarwono, 1987).

Previous studies indicate that academic personnel has obstacles to IT integration in learning activities (Project Tomorrow, 2016). The integration of IT in learning is one of the most disturbing demands for educators because of the lack of preparation for the implementation of education in the environment (Cristensen and Knezek, 2017). Educators may be accustomed to using IT in their daily activities, but the use of IT for the sake of learning and other academic activities is something completely different (Sun, Strobel, and Newby, 2016). Gaps occur in ignorance of educators about how to maximize the use of IT in instructional design, conducting research, and maximizing other academic assignments (Cristensen and Knezek, 2017). Cochrane (2010) operationalizes these gaps into the following aspects: 1) there is no clear pedagogic theory in the design of IT-based learning; 2) Limited evaluation for the implementation of IT-based learning; 3) Weakness of prolonged studies related to the impact of IT-based learning on the quality of education; 4) The need for availability of support for students in the implementation of IT-based learning; and 5) The need for the availability of support for academic personnel in the implementation of IT-based learning. The Cochrane Study (2010) indicates that education practitioners lack guidance in the application of IT-based learning.

However, from the standpoint of Self-Efficacy, the actual ability to integrate IT in learning comes from repeated implementation experiences that enhance Self-Efficacy Beliefs (Bandura, 1986). The habit of academic personnel in using IT for their daily activities has

become a good starting capital. Academic staff only need to shift their regular activity mode into educational activities in their professional duties. Knowledge in the use of IT already exists, the lecturer changes the implementation in different segments. Referring to the Self Determination Theory (Deci & Ryan, 1985) the intention of human behavior is driven by intrinsic and extrinsic motivation. Intrinsic motivation comes from within an individual because of an individual's interest that results in the need for self-actualization of a person on a matter. While extrinsic motivation is an external drive that can generally be in the form of reward or obligation. Digital Age produces natural demands for new work patterns. Academics are required to change their work style if they don't want to be affected by natural selection. This situation results in strong extrinsic motivation for academics, plus support and demands from the government and higher education with various regulations making the transition of learning to IT-based learning mandatory.

On the other hand, the field of education assignment that is generally chosen because of the passion in academic appointments makes individual readiness in the implementation of IT-based learning better. However, such readiness needs to be identified by a measured construct. So that, the mapping of the readiness of human resources can be concluded empirically and produce policy recommendations with a strong scientific basis

3 Research Method

This study was carried out by questionnaire assisted survey method. The research population was the lecturers at Unimed. Of the 200 questionnaires distributed, researchers received 158 responses from seven faculties in Unimed. Representation of each faculty in data collection helped the findings of this study in representing the actual conditions in Unimed. This research questionnaire was adapted from the review of Lu and Price (2018). Questionnaires were formed with categorical capable and not respondents that would represent the ability of respondents in the use of IT in the field of teaching and research assignments. The collected data is then tabulated and presented in the form of presentations that show the percentage of lecturers who can use in the field of teaching and research assignments. The sample demographics in this study can be observed in table 1 below. The sample is distributed at the range of age, gender, and education level.

Table 1. Sample Demography

Descriptions		Amount	Percentage
Age	1. 25 – 35 years	22	13.92%
	2. 35 – 45 years	72	45.57%
	3. 45 – 55 years	64	40.51%
Gender	1. Male	97	61.39%
	2. Female	61	38.61%
Education	1. Master	83	52.53%
	2. Doctor	75	47.47%

4 Result

The results of this study are distributed into two areas of the task of lecturers who are most dependent on IT, namely teaching and research. In the use of IT for teaching purposes, the response shows that almost all academic staff at Unimed have been able to use computer hardware as a general function. That is external storage for data mobility needed in teaching, word management in MS Word applications and MS PowerPoint, smartphone usage for communication interests, the use of video recorders in smartphones, communicating via email, the use of MS Excel for general table management purposes, data tabulation, and the use of video recorders. The IT application is a basic need that must be owned by a lecturer in the implementation of IT-based learning. However, more advanced skills are needed to produce better teaching activity. In this aspect, the frequency of lecturers with advanced IT capabilities shows only <80%. This ability is to manage the MS Excel application for the benefit of analyzing data and managing advanced tables, using digital maps and managing program locations, using games in learning, using learning management systems in managing classes and conducting assessments, and the least capable lecturers are in managing animation software to develop interactive learning media with frequencies below 30%. Management of animation software is indeed not mandatory for lecturers; lecturers can transfer these needs to programmers or IT designers. However, ownership of these competencies can be a unique advantage for a lecturer.

Furthermore, in the IT capabilities of lecturers in the field of research assignments shows that in general the lecturers at Unimed already have basic IT skills for research purposes. For example in the ability to use desktop and laptop computers, portable storage, use of MS Word in writing articles, use of printers and scanners, understanding the use of web browsers and search engines, the use of MS PowerPoint and motion graphics for presentation purposes, search for relevant scientific literature, and secondary data search has a frequency above 80%. This figure has been outstanding in supporting the lecturers' research performance at Unimed. Furthermore, the use of more advanced IT in research activities such as to track accurate and quality literature and data, record and cite assisted applications, and use of reference applications and language applications have frequencies below 80%. Even though, the use of the application for reference and language management will be beneficial in writing scientific articles.

Table 2. Frequencies of ICT Skills.

No.	Skills	%
	Proficient ICT Skills Regarding Teaching Activities	
1.	Hardware (External storage, USB & thumb drives)	96%
2.	Word Processing (Manipulate text)	95%
3.	Hardware (Smartphones)	92%
4.	Hardware (Video recorders or players)	89%
5.	Communication & Email - Reproduce academic formats	88%

6.	Spreadsheet Calculating - Understand terminology: column, row, cell	86%
7.	Data Retrieval & Research - Understand browser uses	84%
8.	Hardware - Audio recorders or players	81%
9.	Spreadsheet Calculating - Alignment & adjust column width & row height	76%
10.	Interactivities - Mapping & location programs	74%
11.	Interactivities - Games & gaming	63%
12.	L/CMS Skills - Access grades for units	62%
13.	L/CMS Skills - Participate in a webinar	60%
14.	Interactivities - 3D or animation software	22%
	Proficient ICT Skills Regarding Research Activities	
1.	Hardware - Desktop & laptop computers	96%
2.	Hardware - External storage, USB & thumb drives	96%
3.	Word Processing - Manipulate text	92%
4.	Hardware - Printers, copiers & scanners	85%
5.	Data Retrieval & Research - Understand browser uses	84%
6.	Graphics Manipulation - Create clear, concise & logical presentations	84%
7.	Data Retrieval & Research - Use keywords in advanced search	82%
8.	Data Retrieval & Research - Search sites with accurate information	79%
9.	Data Retrieval & Research - Record, catalogue & cite data	78%
10.	Word Processing - Use reference, thesaurus & language tools	78%

5 Conclusion

Universitas Negeri Medan (Unimed) has human resources which are accustomed to interacting with IT. The results of this study also show that Unimed's human resources are relatively ready for IT integration in learning. This state is good news considering Unimed is preparing an integrated information system for the implementation of the university's tri dharma (three fundamental task) in Unimed. The irritation of any new SI implementation is prevalent in every organization. Updating IT is always faced with the knowledge stickiness of its users (Szulanski, 1996) which has an impact on the transition leg of an information system. However, with the frequency of readiness of Unimed's human resources in the use of IT in teaching and research activities which are on average above 70%, the leg of the integrated SI implementation will not last long.

Furthermore, an important part that must be a concentration of integrated SI developers in Unimed is the IS alignment of the IS design that has been built. IS alignment speaks of the suitability of SI design and construction to the needs of the field of user task (Luffman, 2004). Therefore, the need of It integeration is bring the complexity of the academic task in higher education as expressed by Altbach, Reisberg, and Rumbley (2009) in a report to the UNESCO 2009 World Conference on Higher Education. Integrated SI developers must be able to provide one-stop IS to organize all academic life of lecturers. Furthermore, the IT acceptance will undoubtedly be tested continuously as long as the SI is used. Therefore sustainable development and maintenance are other vital issues that follow the implementation of integrated IT.

This study produces new insights related to readiness in dealing with digital age. Individual capability in using SI does not always automatically make the individual able to integrate the use of SI in the field of his work. Lecturers need self-efficacy to be able to dynamically adapt to changes in SI usage for various academic activities. Also, the design and construction of SI require conformity with the field of duty that is often of a unique nature. Therefore SI alignment becomes an essential issue of SI integration in learning activities in addition to the self-efficacy of human resources itself which is a crucial factor. The study can then review the successful implementation of IT integration in improving the quality and learning outcomes of students. Further research will be useful in bridging the gap expressed by Cochrane (2010) and producing the best practices of IT integration in academic activities. The success of higher education in exploiting SI will strengthen the role of universities in generating ideas and solutions from the Industrial Revolution 4.0 attack.

References

[1] Al-Htaybat, K., von Alberti-Alhtaybat, L., & Alhatabat, Z.: Educating digital natives for the future: accounting educators' evaluation of the accounting curriculum. Accounting Education, pp 1-25. (2018)

[2] Altbach, P. G., Reisberg, L., & Rumbley, L. E.: Trends in global higher education: Tracking an academic revolution. (2009)

[3] Bandura, A.: The explanatory and predictive scope of self-efficacy theory. Vol. 4, pp. 359-373. Journal of social and clinical psychology (1986)

[4] Bergmann, J., & Sams, A.: Flip your classroom: Reach every student in every class every day. Eugene, OR: International Society for Technology in Education. (2012)

[5] Calimeris, L., & Sauer, K. M.: Flipping out about the flip: All hype or is therehope? International Review of Economics Education, 20, pp 13-28. (2015)
[6] Cochrane, T. D.: Exploring mobile learning success factors. Vol. 2, pp. 133-148. Research in Learning Technology (2010)
[7] Christensen, R., Knezek, G.: Validating a mobile learning readiness survey: Assessing teachers' dispositions toward adoption. Vol. 4, pp. 148-159. Journal of Digital Learning in Teacher Education (2017)
[8] Deci, E. L., & Ryan, R. M.: The general causality orientations scale: Self-determination in personality: Assessing teachers' dispositions toward adoption. Vol. 2, pp. 109-134. Journal of research in personality (1985)
[9] Faisal, M. Generasi Phi p.: Memahami milenial pengubah Indonesia. Republika Penerbit. Jakarta. (2017)
[10] Fidalgo-Blanco, A., Martinez-Nuñez, M., Borrás-Gene, O., Sanchez-Medina, J. J: Micro flip teaching–An innovative model to promote the active involvement of students: Computers in Human Behavior. pp. 713-723 (2017)
[11] Lasi, H., Fettke, P., Kemper, H. G., Feld, T., Hoffmann, M. (2014).: Industry 4.0. Business & Information Systems Engineering (2014)
[12] Fidalgo-Blanco, A., Martinez-Nuñez, M., Borrás-Gene, O., & Sanchez-Medina, J. J.: Educating digital natives for the future: accounting educators' evaluation of the accounting curriculum. Accounting Education, 1-25. pp 239-242 (2017)
[13] Lasi, H., Fettke, P., Kemper, H. G., Feld, T., Hoffmann, M.: Industry 4.0. Business & Information Systems Engineering, pp 239-242 (2014)
[14] Hao, Y. Exploring undergraduates' perspectives and flipped learning readiness in their flipped classrooms. Computers in Human Behavior, pp 82-92 (2016)
[15] Luftman, J. Assessing Business-IT Allignment Maturity. In Strategies for information technology governance. pp. 99-128 (2004)
[16] Jeschke, S. Engineering Education for Industry 4.0. Challenges, Chances, Opportunities. In World Engineering Education Forum (2015)
[17] Lai, C.-L., & Hwang, G.-J.: A self-regulated flipped classroom approach to improving students' learning performance in a mathematics course. Computers & Education. pp 126-140 (2016)
[18] Lu, J., Price, J.: Chinese Students' ICT Readiness for a Blended Teaching and Learning Environment. Vol. 7, pp. 2907-2914. Journal of Mathematics, Science and Technology Education (2018)
[19] Prensky, M.: Digital natives, digital immigrants part 1. On the Horizon. pp 1-6 (2001)
[20] Prensky, M. R.: Teaching digital natives: Partnering for real learning. Newbury Park, CA: Corwin (2010)
[21] Project Tomorrow. From print to pixel: Therole of videos, games, animations and simulations within K–12 education. Speak Up 2015 national findings. Irving, CA: Project Tomorrow. (2016)
[22] Ristekdikti.: Pengembangan IPTEK dan Pendidikan Tinggi di Era Revolusi Industri 4.0. URL: https://ristekdikti.go.id/pengembangan-iptek-dan-pendidikan-tinggi-di-era-revolusi-industri-4-0/ (2018)
[23] Roehl, A., Reddy, S. L., & Shannon, G. J.: The flipped classroom: An opportunity to engage millennial students through active learning. Vol. 2, pp. 44. Journal of Family and Consumer Sciences (2013)
[24] Rogers, E. M., Medina, U. E., Rivera, M. A., & Wiley, C. J.: Complex adaptive systems and the diffusion of innovations. Vol. 3, pp. 1-26. The Innovation Journal: The Public Sector Innovation Journa (2005)
[25] Sarwono, S.W.: Kesiapan masyarakat Indonesia dalam menghadapi teknologi tinggi dalam masalah-masalah kemasyarakatan di Indonesia. Pustaka Sinar Harapan. Jakarta (1987)

[26] Schwab, K.: We must ensure the digital revolution is a force for good. Retrieved from URL: https:// www.weforum.org/agenda/2016/10/we-must-ensure-the-digital-revolution-is-a-force-for-good (2016)
[27] Schuster, K., Groß, K., Vossen, R., Richert, A., & Jeschke, S.: Preparing for industry 4.0–collaborative virtual learning environments in engineering education. In Engineering Education 4.0. pp 477-487 (2016)
[28] Sohrabi, B., & Iraj, H.: Implementing flipped classroom using digital media: A comparison of two demographically different groups perceptions. Computers in Human Behavior. pp 514-524 (2016)
[29] Steed, A.: The flipped classroom. Teaching Business & Economics. Vol. 3, pp. 9-11. (2012)
[30] Strayer, J. E.: The effects of the classroom flip on the learning environment: A comparison of learning activity ina traditional classroom and a flip classroom that used an intelligent tutoring system. Doctoral dissertation. The Ohio Stat University. Retrieved from http://search.pro quest.com/docview/304834174 (2007)
[31] Strayer, J. F.: How learning in an inverted classroom influences cooperation, innovation and task orientation. Learning Environments Research. pp 171-193 (2012)
[32] Sun, Y., Strobel, J., & Newby, T. J.: The impact of student teaching experience on pre-service teachers' readiness for technology integration: A mixed methods study with growth curve modeling. Vol. 3, pp. 597-629. Educational Technology Research and Development (2017)
[33] Szulanski, G.: Exploring internal stickiness: Impediments to the transfer of best practice within the firm. pp. 27-43. Strategic management journal (1996)
[34] Tucker, B.:). The flipped classroom. Vol. 1, pp. 82-83. Education Next (2012)

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