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# JOHN DEWEY'S INFLUENCE ON TURKISH EDUCATION SYSTEM IN THE EARLY REPUBLIC ERA

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#### **Abstract:**

In this research, the influence of John Dewey's visit to Turkey in 1924, his report on Turkish education system and its influence on Turkish education system in the early republic era were discussed. John Dewey was invited by Ministry of Education in 1924. He made investigations concerning the education system, participated in interviews, and submitted a report to the ministry. He stayed approximately two months in Turkey and prepared two reports about Turkish education system: The first report was mainly about urgent addition of some allowances to the budget rather than a report on the general problems of education, and it was in nature of memorandum indicating how to share these allowances. After returning to his country, he wrote and sent the second report. Dewey emphasized a new and unique Turkish education system. Dewey stated that teachers' salaries have to be increased rapidly, appointments should be balanced and it is crucial to provide housing for teachers. He emphasized the importance of awareness of the innovation of the managers and teachers in the education system through training magazines which will be published. He pointed out the importance of the establishment of a library in every school, and a course set on the librarianship at schools. He recommended establishment of an independent unit at the school buildings and architecture in the training organizations, and doing studies abroad on the subject. He expressed that Turkish education system was in a centralized structure whereas having a decentralized structure as well will form a structure distant from bureaucracy. Dewey's suggestions tried to be implemented by some ministers especially by the Mustafa Necati, in the early republic era. In this study, document analysis technique which was included in qualitative research methods was used.

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#### 1. Introduction

When Ottoman Empire had realized how much they fell behind, admiration to western countries started. Admiration to the powerful western countries was either for gaining empire's old magnificence again or for becoming equal to other countries. The western had become both the sign of their own organization's inadequacy and the sample of new regulations. Along with westernization beginning in 18<sup>th</sup> century, several western experts in civil and military field had come to the Ottoman and those experts' reports and teaching skills had been benefited.

The fact that in the Ottoman Empire especially during reform period, benefitting foreign experts became a sedentary situation continued in Turkish Republic. In new government, which won Independence War and abolished the sultanate, it was believed that it was essential to take developed countries as an example in order to solve the development issues and multi interaction began. Because of modernization in republic government, foreign experts have been invited to Turkey according to many and different ministries' desires since 1924.

Some of American educationists who came to Turkey gave only lectures, some made a few researches and some made observation, gave lectures, participated in workshops, and finally reported their suggestions to the Ministry of Education. The first American educationist to come to Turkey was John Dewey.

#### 1.1 The Purpose and Importance of the Study

In this research, it is explored what the influences of John Dewey on the Turkish education system is; what kinds of suggestions were made for the Turkish education system by John Dewey; the dimensions of effects of Dewey who gave the reports by locating in Turkey and doing research; and all evaluations of Dewey in the American literature and the others. In this frame, these two questions' answers' have been searched in this research: What observations and recommendations about the Turkish education system were made by John Dewey? What were the influences of John Dewey on the Turkish education system?

#### 2. Method

In this study, document analysis technique, which was included in qualitative research methods, was used. As it is known, document analysis technique includes finding, reading, note taking and evaluation steps (Yıldırım & Şimşek, 2008). In this study, the influences of John Dewey on Turkish educational system were discussed. In the research, reports of Dewey were analyzed and common discourses/suggestions of

reports were presented. In the first stage, resources of research were provided, they were read in details and necessary notes were drawn out.

## 3. Findings

This section contains Dewey's reports on his observations in Turkey and his preparation for the Turkish education system

## 3.1. John Dewey's Philosophy of Education and Observation on Turkey

John Dewey was one of the most famous educationist and philosopher in his period. He began giving lectures in Michigan University in 1884. He founded University Laboratory School, which was a real school laboratory in Chicago University in 1894-1904. Dewey, who was one of the pioneers of progressivism, adapted pragmatism to education and social life and made it life philosophy (Westbrook, 1993: 277-291).

Professor Dewey, who went to several countries for education systems, accepted İsmail Sefa, the Minister of Education, and decided to come to Turkey. In this period, the government budgeted one billion Turkish Liras for experts who were invited to Turkey in 1924 for different institutions. Dewey was the one among mentioned experts (Ata, 2000: 122-123). However it hasn't been known entirely whether the payment made to Dewey or not. According to some records, Dewey's expense was paid by the USA former senator Charles R. Crane (Ortak, 2005: 53)<sup>iii</sup>.

Dewey came to Turkey for Minister of Education's invitation on July 19, 1924. In Turkey, where Dewey stayed for about two months, he did some research on educational system in İstanbul and in Ankara, participated in a committee. In this process, he visited about ten schools in İstanbul but he couldn't find a chance to observe the lessons because the schools were closed. He collected some information about whether other schools, building, equipments, curricula and school atmosphere were healthy or not. After short travel to Bursa, he went to Ankara on August 13. He met Minister of Education, Vasıf Bey and participated in "Teacher's Committee" Congress, met Mustafa Kemal (Atatürk) and after his research, he came back to İstanbul on August 26 (Ortak, 2005: 55-56).

After investigations he made, he made some explanation about Turkish educational system. Dewey said that every country had different needs but because of those needs, no country maintained their education system as it did and he suggested that after different education systems were observed, accepted and established "Turkish System".

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<sup>&</sup>lt;sup>iii</sup> For more about Charles R. Crane, see Norman, E. S. (2013). The Life and Times of Charles R. Crane, Lanham: Lexington Books.

It was recommended that not only students were sent to abroad for analyzing systems but also teachers were sent to abroad or experts were invited (Tanin, 1924). In his signed letter to journalist, Dewey emphasized that advice about Turkish educational system: Turkish educational system must be the system in which society's needs met, individuals gained self-thinking skills, course books had a supporting role and the necessary information about life gave to individuals (Cumhuriyet, 1924). In tea party in teacher's committee, Dewey stated that after economic issues solved, educational reforms could benefit (Vakit, 1924). After densely two-month-research, observation, interview and speech, he left Turkey on September 18.

## 3.2. Dewey's Reports on Turkish Educational System

After research Dewey made, two different reports were sent to Ministry of Education at different dates. The first report was about not only general education issues but also a memorandum that showed where some urgent grants were left. He gave mentioned report even when he was in Turkey and this report was published on newspapers (Hakimiyeti Milliye, 1924). He wrote and sent the original report named as the report about Turkish educational system after he returned his homeland. Two reports completed each other. Those reports were published again firstly in 1939, later in 1952 by Ministry of Education.

## 3.3. Dewey's First Report

In Dewey's first report, he suggested that experts must be trained about school structure and equipments; that a department must be established for preparing vocational curriculum; that departments must be established and a committee must be constituted for training expert teachers, principals and supervisors. In addition, work must be written for applied education and translated. Officers must be trained for portable libraries. Portable exhibitions must be opened to show the devices, which were used in industry, to people and according to Dewey, who suggested that the young must be sent for having new information in this subject, village schools' curriculum must be reconsidered for developing the agriculture in accordance with this purpose and urgent grant must be given to budget for carrying out all of them (Dewey, 1939: 1-2).

In his report, Dewey, who underlined that training teachers was allowed the same as in the world and if it weren't, there wouldn't be a real educational reform, categorized the done things in those headlines (Dewey, 1939: 3-5) the present department must be developed for publishing and translating the foreign works on education. Those translations must be from both books and periodicals. The most essential parts must be translated, not all of them. The works that will be translated

must include practice and they must directly benefit teachers. On the other hand, discussion groups must be established among teachers; those groups must consult the headlines, which were prepared annually, with each other every 15 days. In addition, teachers must benefit different equipments in their lessons.

Dewey, who emphasized on vocational education, suggested that in this subject, cooperation among ministers were made and decided together. The other subjects, which were mentioned in his second report (Dewey, 1939: 6-8):

There aren't enough books for children who are beginners at reading, thus libraries department in ministry must be established and students can get books from there. A place in schools must be identified; those libraries must allow people to borrow books. School buildings must be ordinary. When there are only some classes and a few plates, students will be passive; therefore, in schools there must be such places as classes for manual works and home economics, arts, library, gymnasium and there must be plenty of equipments there. According to Dewey, in order to organize those effectively, building and equipment department in ministry must be established. In Turkey, modern school system hasn't started yet. Thus, the next steps must be very essential and long-running. Both students and teachers must be sent to Europe because this issue will develop effectively and after research, the reports will be demanded from teachers. He directly guided when he suggested that a committee was sent to Denmark for agriculture training, people's schools and the cooperative system.

## 3.4. Dewey's Second Report

Dewey made evaluation that is more detailed in his original report, which was sent after he returned his homeland. Besides the essential part of information that was given in original report in detail was stated as some headlines in two short reports that were given to Ministry of Education. According to Dewey, the most significant point in Turkish education system is to determine the targets and if the targets are determined correctly, the next steps will be more flowing. According to him, Turkish education system must be the system that not only trains the leaders but also entirely contributes the development of all people. Therefore, schools must focus on two targets as a center of social life: The first one is to gather and to spread the information that is beneficial for nation and the second one is to train students in practice (Dewey, 1939: 8-10).

Dewey suggested 8 or 12 years macro plan for Turkish education system. According to him, this plan must be prepared by Turkish Grand National Assembly and it must be like a constitution; it must not for a person or a group (Dewey, 1939: 10). As Dewey mentioned in his first report, he stated that foreign literature about education must be translated, there must be library in every school, and school building must be specially designed. Besides, he suggested that a unit on statistics must be established to

fill in the empty personnel cadre, the number of school-age children, the determination of absent students, the lack of teachers. According to him, in order to take important steps and to make basic decisions, central organization in Ministry of Education is so significant. However, an entire centralist structure may even damage because it increases bureaucracy and paperwork. In addition, supervisor must work hard much more for the determination of deficiency in education system in a short time. Therefore, the subject needs to be discussed firstly (Dewey, 1939: 12-15).

Dewey refers to teacher training policies. He refers that smart and devoted youth must be encouraged in teachership. However, teachers must be improved on their salaries and administration. A teacher, who is devoted himself/herself to his/her job must not deal with anything else. In order to contribute on financial support in education, several national properties in Turkey will be benefitted and will be allocated to schools. It is very crucial that teachers will be sure for their personnel cadre. Lodging buildings, which is allocated to teachers especially in villages, may be encouraging in their job. In addition, giving broader authority about money to principals will be beneficial (Dewey, 1939: 15-18).

Dewey had two suggestions about teacher training: Firstly, the period of teacher training schools is not enough and there are some deficiencies. Therefore, he stated that teachers should be sent abroad for observation for a year and that it crucially benefits to teachers. Secondly, there are only teacher training schools for primary and secondary schools, but this situation has some disadvantages. Therefore, in some teacher training schools in village must have some branches to train trade, industry, physical education, art, music, health and preschool teaching. Lessons must be given to train supervisors and principals in at least a teacher training school. Lesson varieties and admission requirements of teacher training schools must be different. In at least a teacher training school, practice school will be opened and this place must be an application area for new information (Dewey, 1939: 19-21).

Dewey, who stated that the school system in Turkish education system could not organize well, suggested a new organization. According to him, primary schools must be arranged for country's local conditions. If students connect their environment with school life, they will be successful, but if not, school will be meaningless for students. Besides, parents' desires will be as important as students' will. For instance, in villages parents want their children to work in the fields, so they do not want to send them to schools. In this occasion, schools may be closed earlier or the period will be shortened there. Secondary schools are designed to enlighten the casual life and send talented and enthusiastic students' to university. In other side, not only French but also German and English will be taught as foreign languages. In addition, a new arrangement must be made so that undergraduate students will be sent abroad for continuing their

education. According to him, a republic school must administer differently from schools of countries that is governed by absolutism. Only giving orders, managing arbitrarily, student's being obeyed without thinking, training students only as a citizen is not an appropriate method. Students' participating in school management has a crucial place in school development (Dewey, 1939: 22-28).

## 4. Conclusion

Evaluating the influence of John Dewey, who did a research on Turkish education system, observed and reported it, on Turkish education system has not been definitely possible. Because, some similar terms were mentioned from second constitutionalist period by Turkish educationists and decisions were made in meetings (Ergün, 1996: 96-191). In addition, when it was thought, the steps and education policies that were developed by Ministry of Education soon after the report Dewey gave; relevant policy and steps can be strongly associated with Dewey.

In 1924, which is a period in which there weren't official relationship between Turkey and the USA, the suggestions of Dewey, who was the first American educationist to come to Turkey, made significant effects and practiced in 1925-1929 in which Mustafa Necati was the Minister of Education (Ata, 2000: 119-30; Bal, 1991: 23-24; Biesta & Miedema, 1996: 1-26; Büyükdüvenci, 1995: 393-400; Gazo, 1996: 15-42; Gündüzalp, 1949: 283, 1949; Kılınç, 2014: 27-38; Tarman, 2011: 45-61; Turan, 2000: 543–555; Uygun, 2008: 291-307).

The opinion to publish a journal for teachers was one of Dewey's suggestions and the first "Journal of Minister of Education" (Maarif Vekaleti Mecmuası) was published by the Ministry in 1925. In that journal, by considering Dewey's suggestions, introductory writings about several education systems, started to be published (Duman, 2014: 576-594).

Dewey's suggestion "Turkey has to make an educational plan to reach the targets; this plan must be like a law for Turkish education system" was considered in Ministry and in 1926, Turkish education board was established and started its actions. As the continuation of the suggestion that the subjects, which prepare students to real life from primary school were put in curriculum, primary school curriculum were changed in the same year and decided on putting social studies lesson in first, second and third classes in primary school. In the same year, Dewey's other suggestion was carried out and Gazi Teacher Training Institute was opened in Ankara. In the next year, the Bureau of School Architecture was established (Akyüz, 2012: 386-387; Öztürk, 1996: 201-202).

In the early republic period, primary school teachers, training of villagers and rural teachers are the most accentuated and discussed subjects in educational system in Turkey. Different suggestions were completely offered about relevant subjects. From the second constitutionalist period, Turkish educationists stated that the urban and the rural lives were different from each other and this situation affected the educational process; so, there had to be some differences between training rural teachers and urban teachers. The first result of those suggestions that discussed among Turkish educationists and accelerated with Dewey's report was seen in 1926. The Minister of Education, Mustafa Necati, who was affected by especially Dewey's report, opened rural teacher training schools in Denizli and Kayseri (Şanal & Karagöz, 2006: 183-202). Male teacher training school in Denizli was transformed into rural teacher training school. The curriculum in rural teacher training schools was prepared for the needs of villagers. Rural teacher training schools, which were closed in 1933 continued as village coaching in 1937 and as village institute in 1940 (Akyüz, 2012: 392-396; Koçer, 1967: 110-114). The general director of primary schools, İsmail Hakkı Tonguç, who was one of the most important people in village institute and in village coaching course, admired Dewey greatly and he stated the suggestions in his report as befitting.

One of the most accentuated subjects Dewey mentioned was teachers' low salaries and financial difficulties. In Turkish Republic, which was tried to establish on war ruins, a great amount of money was needed for transportation, agriculture, trade and groundwork and pavement. So, the Minister of Education couldn't get a share they want from general budget at first and in 1920s the share in budget was about 4%. The influence of the report about increasing teachers' low salaries was immediately seen and between 1924 and 1930, 150% increase was given to them (Şahin, 1996: 222-227). Dewey suggested inviting foreign educationists, and sending students and teachers to abroad. From the period of Mustafa Necati, educationists and teachers were invited to Turkey firstly from Europe afterwards mostly from the USA at different times in different periods. After the experts' similar suggestions, hundreds of students were sent to abroad and most of those students went for ministry. Again, considering the suggestions of Dewey, several educationists were invited to Turkey in ensuing years. Although the authorities of its period wanted to invite new experts by considering those suggestions, the negative effects of the world economic crisis in 1930s, The Second World War and evaluating and practicing of first coming experts caused a slowdown in the number of educationists, even a halt. This halt came to an end because of the end of the war, the recovery of economic crisis, the change of political power soon after 1950

iv For more about Mustafa Necati, see İnan, M. R. (1980). *Mustafa Necati: Kişiliği, Ulusal Eğitime Bakışı, Konuşma ve Anıları*, İstanbul: Türkiye İş Bankası Kültür Yayınları; Binbaşıoğlu, C. (2009). *Başlangıçtan Günümüze Türk Eğitim Tarihi*, Ankara: Anı Yayıncılık.

v For more about village institute and İsmail Hakkı Tonguç, see Soysal, e (1945). İlköğretim Olayları ve Köy Enstitüleri, Bursa: Uygun Basımevi; Tonguç, İ. T. (1998). Eğitim Yoluyla Canlandırılacak Köy, Ankara: Köy Enstitüleri ve Çağdaş Eğitim Vakfı; Tonguç, İ. H. İlköğretim Kavramı, İstanbul: Piramit Yayıncılık.

and everything started to improve increasingly again (Doğan, 2010: 390-393; Şahin, 1996: 231; Şahin, 1998).

It is obvious that Dewey could not be underutilized as much as desired and expected. Certainly, there were some reasons for this. One of those reasons was that there was no study on Turkish education system and that he came to Turkey for a short time. Because he stayed in Turkey for two months, he might not have entire knowledge about Turkey's issues. In fact, a country's educational system is closely associated with its cultural infrastructure, social fabric, its economy and relationships.

The other reason of Dewey's being underutilized is that both ministers and educational bureaucrats were changed a lot in Turkey. In the early republic period, from 1923 to 1950, 20 Minister of Education were officiated (<a href="www.meb.gov.tr/meb/">www.meb.gov.tr/meb/</a>). In addition, in average every year, the minister was changed; even there were ministers who were officiated for only one and a half months. The change of a minister mostly meant the change of educational policies and the attitude towards foreign educationists. The suggestion of an expert who was invited to Turkey was changed by other successor minister or acted against or other expert was invited before an expert's suggestion wasn't actually practiced.

#### References

- 1. Akyüz, Y. (2012). Türk Eğitim Tarihi, 23. Baskı, Ankara: PegemA Akademi.
- 2. Ata, B. (2000). "The Influence of an American Educator (John Dewey) on the Turkish Educational System", *The Turkish Yearbook*, (31), 122-123.
- 3. Bal, H. (1991). 1924 Raporunun Türk Eğitimine Etkisi ve John Dewey'in Eğitim Felsefesi, İstanbul: Aydınlar Matbaası.
- 4. Biesta, G. J. & Miedema, S. (1996). "Dewey In Europe: A Case Study on the International Dimensions of the Turn-of-the-Century Educational Reform", *American Journal of Education*, (105), 1-26.
- 5. Binbaşıoğlu, C. (2009). *Başlangıçtan Günümüze Türk Eğitim Tarihi*, Ankara: Anı Yayıncılık.
- 6. Büyükdüvenci, S. (1995). "John Dewey's Impact on Turkish Education", *Studies in Philosophy and Education*, (13), 393-400.
- 7. Dewey, J. (1939). Türkiye Maarifi Hakkında Rapor, İstanbul: Devlet Basımevi.
- 8. Doğan, İ. (2010). Türk Eğitim Tarihinin Ana Evreleri: Kurumlar, Kişiler, Söylemler, Ankara: Nobel Yayın Dağıtım.
- 9. Ergün, M. (1996). II. Meşrutiyet Devrinde Eğitim Hareketleri (1908-1914), Ankara: Ocak Yayınları.
- 10. "Eski Bakanlarımız", <a href="http://www.meb.gov.tr/meb/">http://www.meb.gov.tr/meb/</a> (Last accessed: 23.05.2016).

- 11. Gazo, E. W. (1996). "John Dewey in Turkey: A Educational Mission", *Journal of American Studies of Turkey*, (3), 15-42.
- 12. Gündüzalp, F. (1949). "John Dewey'in Türkçe'ye Çevrilmiş Eserleri ve Bunların Türkiye'de Öğretim ve Eğitim Üzerine Etkileri", İlköğretim Dergisi, 15(283), 3700-3702.
- 13. "İbtidai Rapor", *Hâkimiyeti Milliye*, September 25, 1924.
- 14. İnan, M. R. (1980). *Mustafa Necati: Kişiliği, Ulusal Eğitime Bakışı, Konuşma ve Anıları,* İstanbul: Türkiye İş Bankası Kültür Yayınları.
- 15. Karagöz, S. & Duman, T. (2014). "Educational Views and Suggestions in Periodicals Between 1908-1928", *The Journal of International Social Research*, 7(35) 576-594.
- 16. Kılınç E. (2014). "John Dewey's Impacts on the 1924 Turkish Elementary School Curriculum: A Content Analysis", European Journal of Social Sciences, 7(2), 27-38
- 17. Koçer, H. A. *Türkiye'de Öğretmen Yetiştirme Problemi (1848-1967)*, Ankara: Yargıçoğlu Matbaası.
- 18. Norman, E. S. (2013). *The Life and Times of Charles R. Crane*, Lanham: Lexington Books.
- 19. Ortak, Ş. (2005). Atatürk Dönemi Eğitim Politikalarında Yabancı Uzman Raporlarının Etkileri, PhD Thesis, Erzurum: Atatürk University.
- 20. Öztürk, C. (1996). *Atatürk Devri Öğretmen Yetiştirme Politikaları*, Ankara: Türk Tarih Kurumu Basımevi.
- 21. "Profesör Con Devveyin Önümüze Açtığı Mühim Maarif Esasları", *Vakit,* September 17, 1924.
- 22. "Profesör Con Dövi", Tanin, August 17, 1924.
- 23. Soysal, E. (1945). İlköğretim Olayları ve Köy Enstitüleri, Bursa: Uygun Basımevi.
- 24. Şahin, M. (1996). Öğretmen Yetiştirme Uygulamalarında Yabancı Uzmanların Yeri ve Önemi, PhD Thesis, İzmir: Dokuz Eylül University.
- 25. Şahin, M. (1998). "Türk Eğitim Sisteminde Yabancı Eğitim Uzmanlarından Yararlanma", *Toplumsal Tarih*, (54), 12-18.
- 26. Şanal, M. & Karagöz, S. (2006). "Türk Eğitim Tarihi İçerisinde Kayseri Zencidere Köy Muallim Mektebi ve Faaliyetleri", *Milli Eğitim*, (172), 183-202.
- 27. Tarman, B. (2011). "Development of Social Studies Curriculum in Turkey and John Dewey's Effect on the Modernization of Turkish Education", *International Journal of Progressive Education*, 7(1), 45-61.
- 28. Tonguç, İ. H. (1945). İlköğretim Kavramı, İstanbul: Piramit Yayıncılık.
- 29. Tonguç, İ. H. (1998). *Eğitim Yoluyla Canlandırılacak Köy,* Ankara: Köy Enstitüleri ve Çağdaş Eğitim Vakfı.

- 30. Turan, S. (2000). "John Dewey's Report of 1924 and His Recommendations on the Turkish Educational System, Revisited", *History of Education*, 29(6), 543–555.
- 31. Uygun, S. (2008). "The Impact of John Dewey on the Teacher Education System in Turkey", *Asia-Pacific Journal of Teacher Education*, 36(4), 291-307.
- 32. Westbrook, R. B. (1993). "John Dewey (1859-1952)", UNESCO International Bureau of Education, XXIII (1/2), 277-291.
- 33. Yıldırım, A. & Şimşek, H. (2008). Sosyal Bilimlerde Nitel Araştırma Yöntemleri, Ankara: Seçkin Yayıncılık.
- 34. Zekeriya, M. (1924). "Divvey Ne Yapacak?", Cumhuriyet, August 19.

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