

The Contribution of Previous Educational Studies on the Process of Teaching Science Curriculum in Secondary Schools in Jordan

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Abstract

The primary purpose aim of this article is to explore, in depth the contribution of last educational studies in developing the process of teaching science curriculum in secondary schools in Jordan between 2010 and 2017. The ideas presented in this paperwork offer insightful views on contemporary educational studies within schools in Jordan. The paper aims to contribute to the body of developing appropriate ways of teaching Science curriculum in secondary schools not just in Jordan but also around the global society. The study also focuses on discovering ideal relation amid achievement motivation along with secondary school learners' achievements. Moreover, this study shows how the effectiveness of environmental education for sustainable development remains to be the essential factor in teaching and learning science within secondary schools in Jordan. The analysis of teaching and learning process follows the description of different facts about Jordan, school system in Jordan, the background of the investigation, the practical education programs, student teachers, and training, along with school practices.

Keywords: Educational Studies, Science Curriculum, Secondary Schools in Jordan, Process of Teaching.

1. Introduction

Jordan remains to be one of the nations that have repeatedly emphasized the importance of teaching and learning of Science. The country has been one of the most massive workforce exporting nations within the Middle East. The teaching process in schools of Jordan always demands expertise in the pedagogy for various purposes (Oraib & Musa, 2012). Some of these reasons comprise of socio-cultural, philosophical, psychological, economic, educational, together with pedagogic. Teaching process of science in secondary schools in Jordan serves an insufficient purpose, and the target students tend to have less opportunity to practice the target ideas outside the classroom settings. Besides, Jordan prides its educational system on its advancement in the education system (Sonia, 2015). Jordan also offers the more significant proportion of its public budget for education than many nations around the globe. Therefore, the objective of this paperwork is to examine, in depth the contribution of previous educational studies in developing the process of teaching science curriculum in secondary schools in Jordan between 2010 and 2017.

2. Teaching Process in Schools of Jordan

The dependence of any learning system on teaching process supports has remain to be the obligation for the accomplishment of learning schemes in Jordan. The idea has helped in the creation of advanced excellence learned inventions. Besides, schooling process has been receptive to disparities of people among the rising numbers that enroll in secondary schools in Jordan. No doubt that all types of teaching aids of science in all secondary schools in Jordan help in improving, increasing, developing, as well as guiding towards increased interaction amid teacher and learner. These aids have remained essential in secondary schools as they help students to connect materials that teachers always exist with certainty while revealing chances for learners to expand capabilities together with skills (Basil, 2015). The idea of providing learners with cognitive techniques are necessary for supplement to creating their significant, cognitive, with deductive minds that develop their capability to academic liberation supported in the appropriate process of creating decisions in diverse life states. Furthermore, teachers possess the most significant responsibilities for molding the brains alongside hearts of ages of students while showing ideas in Science. The nature and nature of educator instruction in Jordan has stayed to be the subject of much concern (Omar et al., 2016). In the present period of fast change, auxiliary schools in Jordan have been experiencing strain to convey top-notch guideline to their students.

3. Background & Conceptual Framework

For a period over forty years, optional schools in the US have concentrated on thoughts that arrangement with basic reasoning. In addition, it has just been inside most recent couple of decades that thought of basic reasoning has gotten much consideration in the Jordanian arrangement of instruction in optional schools. According to Alazzi (2013), more than two-thirds of secondary school students in Jordan surveyed had guaranteed that they were not shown thoughts of basic reasoning in classes that deal with Science curriculum. Several findings of different studies have reported that the problematic existence of insufficient instruction remains to occur in secondary schools that deal with critical thinking skills (Omar et al., 2014). Historically, the idea of teaching critical thinking in secondary schools within Jordan can be logical from Dewey's logic of believed that had been

creating amid the early area of the twentieth century. Moreover, it was not until the early days of 1950's that different educators of Science curriculum began the process of teaching critical thinking aptitudes in the classroom to be the basic part of the educational modules.

The teachers in Jordan have recently embarked on the idea of posing multiple-choice test in the Science curriculum. The idea has been significant in evaluating skills of secondary students with different arguments, recognizing their assumptions, assessing their conclusions, and assessing their strengths of reasoning offered in support of their claims (Naser et al., 2010). Besides, in building up the workable meaning of basic reasoning for the investigation of science educational modules depends essentially on Glaser's three parts of basic reasoning. These segments comprise of the mentality arranged to consider mindfully the issues and subjects that accompany the scope of individual experience (Yurtseven & Altun, 2017). The other component is the information of the strategies for intelligent request along with reasoning as well as some techniques in applying different practices in teaching and learning science.

One of the significant educational challenges that are learning and teaching Science curriculum in Jordan's face is how to attract more underrepresented minority learners to the programs. The guiding of this study on teaching and learning process of Science curriculum in secondary schools within Jordan remains to be the theoretical socialization framework. Socialization theoretical structure continues to be the process that a person tends to have in developing the sense of professional self that comprise of values, skills, attitudes, together with knowledge of teachers and learners. The present arrangement of instructor training in Jordan was not establishable until the finish of the beginning of the 1980s (Lynch, 2017). Before these moments, most teachers in the secondary schools were assignable to optional schools having had no preparation or experience of instructing. The use of theoretical socialization framework construct in the lesson, and learning science curriculum offers the ideal channel for understanding the influence of the contextual forces in secondary education (Sarhan et al., 2011). The idea helped the students to understand the complexities involved in the career decision processes that deal with presentations of secondary students as well as offering the framework for the study of Science curriculum (Cueto et al., 2014). Besides, Jordan educational system focused on the development of comprehensive theoretical along with conceptual framework model for success in pathways curriculum. In Jordan, concepts of the Pathways to teaching and learning of Science courses within schools is not a new idea (Penuel et al., 2014). For instance, some secondary schools offer ideas of teaching advanced topics in science with the objective of exposing students to build understanding on scientific matters.

4.Literature Review

All secondary schools in Jordan focus on the development of schooling systems that accept part of their function of preparing children for the world of work. To achieve this objective in the science curriculum, secondary school systems and their stakeholders help in seeing that useful as well as motivational aspects of science learning to be essential not only in the class but also within broader communities around Jordan (Al Sarhan et al., 2013). Teaching and learning of Science curriculum in Jordan within secondary serve different purposes. Some of the missions include the idea of strengthening the foundation of science and later laying the basis for specific Science ideas that will be applicable in the years of the learners' specialties (Claymier, 2014). In some cases, it becomes tough for the science teachers to encourage some enthusiastic students to embrace the use of scientific techniques because some learners tend to be slow learners. Additionally, there are many challenges that face teaching and learning of Science curriculum in Jordan (Austin et al., 2017). These challenges range from inadequate materials to be used during scientific-practical, incompetent teachers, lack of concentrations among students, and little interest among learners to learn and understand ideas of science (Foley et al., 2017). Therefore, teachers remain to be the essential element in any educational plan that relates to the science curriculum. The teacher continues to be an individual that is responsible for the process of implementation of the education process of science curriculum at any stage.

Achievement of a meaningful application of advancement in technology within the field of education has a considerable influence in teaching and learning process of Science curriculum in Jordan. Some of the factors that affect learning and teaching of Science curriculum include attitudes of stakeholders like teachers and learners (Alazzi, 2017). Other factors include the use of new technologies that can help in increasing ability and interest of the student in applying authentic settings within secondary schools in Jordan. The ideal teaching and learning classroom environment help in preparing students for success in the scientific centered world of work (Dinc & Uztemur, 2017). The idea of using advancement in technology in teaching science in secondary schools in Jordan aids in developing learners to be capable of maintaining as well as applying facts so that they can remain prolific as well as responsible citizens of Jordan.

5.PIZA and TIMSS Tests

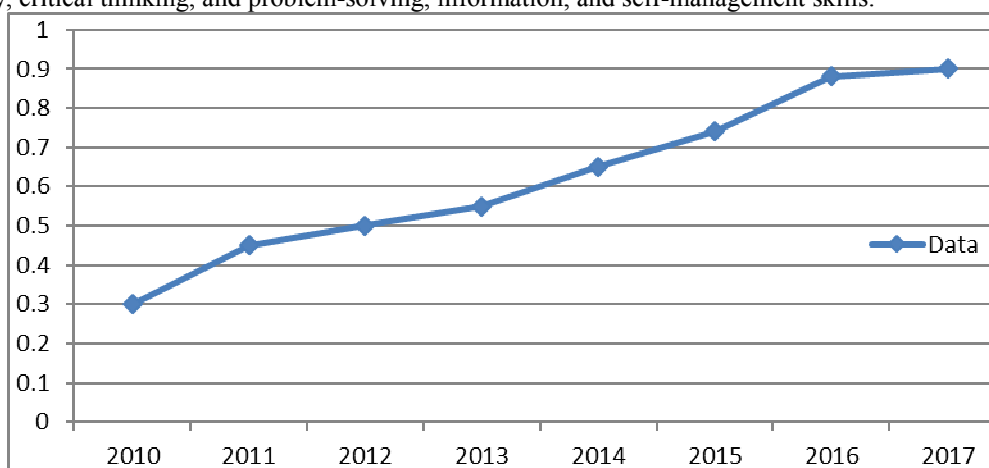
Jordan has taken an interest in worldwide extensive scale evaluations (LSAs) since 1991 and in the vast majority of the Trends in International Mathematics along with Science Studies (TIMSS) as well as the Program that deal

with International Student Assessments (PISA). Jordan education system offers different manners on science curriculum since the use of tests that comprise of TIMSS and PISA had huge impact on instruction strategy (Corr, 2014). For instance, the tests remain to be the key execution markers in the arrangement making process, through the advancement of school educational module and instructor preparing guides in science curriculum. Jordan put in place a national policy on textbooks, teaching, and learning materials informed by high-performing countries in education around the world. As far as educational programs usage, beginning from fourth grade, authority instructors in arithmetic and science (Lewis et al., 2017) instruct understudies. As a base lawful prerequisite, educators should hold a four-year certification to train any subject, including arithmetic and science (Hanson & Amelotte, 2013). The imperative commitment of these tests was for the taking an interest nations like Jordan to comprehend their instructive frameworks to empower chiefs, and instructive strategy producers to better set reasonable models for understudies' accomplishment and instructive execution.

6. Methodology

Analytical and descriptive of elements and studies that leading to develop the teaching process of science curriculum in secondary schools in Jordan remains to be the essential factor in teaching and learning. The framework for Science curriculum in secondary schools in Jordan is all embodied in different components that include indispensable information, aptitudes, values, too states of mind that students need to create at the optional level (Gulley et al., 2017). The development of teaching process of science curriculum in secondary schools in Jordan is founded on different principles. These principles remain to be harmonious with those suggested in the Senior Secondary guide of the educational programs (Lin, 2015). Some of these components center around advancing evaluation for learning by expanding on the experience of school-based appraisal alongside benchmarks referenced announcing (Looney et al., 2017). The thought encourages the use of measures to illuminate learning and instructing and to improve arrangement amid evaluation of science curriculum. The approach focuses on achieving the balance between hypothetical with connected learning by offering measure up to accentuation to logical information and utilization. The science educational programs give students learning encounters to build their logical capability for examination, recreation, work, and individual advancement (Austin et al., 2017). The learners also get the opportunity to develop their values, skills, and knowledge and attitude towards promotion of long-life learning to upgrade their own and astuteness progression through social understanding and worldwide intensity.

The existence of strands in teaching process of science curriculum in secondary schools in Jordan help in highlighting the primary functions for which the science is learned in the region. The strands are applicable in organizing contents of learning along with activities for developing knowledge, skills, attitudes, and values of students as a holistic process (Kurth et al., 2016). Besides, strands remain to be categories through which to organize science curriculum in the teaching process. There are generic skills that seem to be a significant component in teaching science curriculum in Jordan (Gliga & Sabau, 2012). These components of generic skills stay to be important in allowing students to study how to create ideas within science curriculum (LeBard et al., 2017). Some of the skills developed to help in teaching include collaboration, creativity, communication, study, numeracy, critical thinking, and problem-solving, information, and self-management skills.



Graph indicating development of teaching science curriculum in Jordanian schools during the years from 2010 to 2017 in the range of 0 to 1.

Basically, the Graph indicates that there is a dramatically significant development in the teaching process of science curriculum in the Jordanian schools, the horizontal scale represents period of time in years between 2010 to 2017, On the other hand, vertical scale shows the development range of teaching science curriculum between 0 to 1.

7. Conclusion

Different investigators believe that the experience of learners described in this paperwork represents what occurs in teaching and learning process of science curriculum in secondary schools within Jordan. There is a need for more study works to add the conclusion to the investigation on the contribution of previous educational studies in developing the process of teaching science curriculum in secondary schools in Jordan between 2010 and 2017. Further investigations are necessary to be applicable from different places to aid in the process of analyzing the broad base of secondary students that enroll in the science curriculum. The expected outcomes, environment, along with socioeconomic statuses of education stakeholders may not be the same from different school settings in Jordan. From this presentation, it is evident that effective teaching and learning of science curriculum in secondary schools in Jordan depends mainly on the perception of learners towards the concepts.

8. Recommendations

From the study, it is evident that Jordanian secondary schools' teachers who teach science curriculum are not comfortable with the aptitudes, definition, and showing techniques of basic reasoning, there is a need for deployment of further studies to come up models that show how to instruct science to the honing instructors. The presentation of the instructional model in science curriculum teaching needs the additional survey that might uncover regardless of whether educators have instructed science to their understudies and to comprehend to what degree the students have learned and connected these aptitudes. Having illustrated as well as elaborated on the outcomes obtained from this investigative paper, it is necessary for the ministry of education in Jordan to take steps towards the creation of culture of learning center that makes interest in learning scientific values. Besides, there is a need for consulting with learners as well as consider their opinions to change the educational view on science curriculum.

References

- Al Sarhan, K. A., Alzboon, S. O., Olimat, K. M., & Al-Zboon, M. S. (2013). Features of computerized educational games in sciences of the elementary phase in Jordan from the point of view of specialists in teaching science and computer subjects. *Education*, 133(3), 247-260.
- Alazzi F. Khaled. (2013). Jordanian students attitudes toward social studies education. *The Journal of International Social Research*, 24(6), 1-10. www.sosyalarastirmalar.com
- Alazzi, K. (2017). Jordanian Seventh- and Eleventh-Grade Students' Views on Citizenship Education. *Educational Research Quarterly*, 40(4), 3-22.
- Austin, C. R., Vaughn, S., & McClelland, A. M. (2017). Intensive Reading Interventions for Inadequate Responders in Grades K-3: A Synthesis. *Learning Disability Quarterly*, 40(4), 191-210. doi:10.1177/0731948717714446
- Basil H. Menazel. (2015). Upper Primary Level History Teachers' Attitudes toward the Use of School Field Trips as an Educational Aid throughout Schools in Irbid First Education Directorate. *Journal Of Education and Practice*, 6(29), 1-10. <https://files.eric.ed.gov/fulltext/EJ1081320.pdf>
- Clayborn, J., Koptur, S., O'Brien, G., & Whelan, K. R. (2017). The Schaus Swallowtail Habitat Enhancement Project: An Applied Service-Learning Project Continuum from Biscayne National Park to Miami-Dade County Public Schools. *Southeastern Naturalist*, 1626-46. doi:10.1656/058.016.0sp1007
- Claymier, B. (2014). Integrating stem into the elementary curriculum. *Children's Technology & Engineering*, 18(3), 5.
- Corr, J. (2014). The enlightenment surfaces in nineteenth-century Mexico: scientific thinking attempts to deliver order and progress. *History Of Science*, 52(1), 98-123.
- Cueto, S., Guerrero, G., Leon, J., Zapata, M., & Freire, S. (2014). The relationship between socioeconomic status at age one, opportunities to learn and achievement in mathematics in fourth grade in Peru. *Oxford Review Of Education*, 40(1), 50-72. doi:10.1080/03054985.2013.873525
- Dinç, E., & Üztemür, S. (2017). Investigating Student Teachers' Conceptions of Social Studies through the Multi-dimensional Structure of the Epistemological Beliefs. *Educational Sciences: Theory & Practice*, 17(6), 2093-2142. doi:10.12738/estp.2017.6.0429
- Foley, B. C., Shrewsbury, V. A., Hardy, L. L., Flood, V. M., Byth, K., & Shah, S. (2017). Evaluation of a peer education program on student leaders' energy balance-related behaviors. *BMC Public Health*, 171-8. doi:10.1186/s12889-017-4707-8
- Gliga, M. G., & Sabău, M. (2012). Motivating teachers by assigning each a different group of medical students to educate on a same physiology curriculum. *Clujul Medical*, 85(4), 640-645.
- Gulley, A. P., Smith, L. A., Price, J. A., Prickett, L. C., & Ragland, M. F. (2017). Process-Driven Math: An Auditory Method of Mathematics Instruction and Assessment for Students Who Are Blind or Have Low Vision. *Journal Of Visual Impairment & Blindness*, 111(5), 465-471.
- Hanson, C., & Amelotte, P. (2013). Cracking Open the Curriculum. *Liberal Education*, 99(1), 44-49.

- Kurth, J. A., Born, K., & Love, H. (2016). Ecobehavioral Characteristics of Self- Contained High School Classrooms for Students With Severe Cognitive Disability. *Research & Practice For Persons With Severe Disabilities*, 41(4), 227-243. doi:10.1177/15407969166661492
- LeBard, R. J., Brynn Hibbert, D., & Quinnell, R. (2017). Practice in Digital Research Spaces to Engage Students with eScience. *Teaching Science: The Journal Of The Australian Science Teachers Association*, 63(1), 41-48.
- Lewis, J., Oliver, R., & Oliver, M. (2017). An evaluation of the impact of an agricultural science attitudes of rural students. *Teaching Science: The Journal Of The Australian Science Teachers Association*, 63(2), 35-41.
- Lin, A. (2015). Citizenship education in American schools and its role in developing civic engagement: a review of the research. *Educational Review*, 67(1), 35-63. doi:10.1080/00131911.2013.813440
- Looney, L., Perry, D., & Steck, A. (2017). Turning negatives into positives: the role of an instructional math course on preservice teachers' math beliefs. *Education*, 138(1), 27-40.
- Lynch, J. (2017). The complexity of teaching internet inquiry with iPads in the early years. *Australian Journal Of Language & Literacy*, 40(3), 186-198.
- Mitchell, N., Triska, M., Liberatore, A., Ashcroft, L., Weatherill, R., & Longnecker, N. (2017). Benefits and challenges of incorporating citizen science into university education. *Plos ONE*, 12(11), 1-15. doi:10.1371/journal.pone.0186285
- Naser, J. A., Leong, L. M., & Fong, S. N. (2010). Teachers' Attitudes and Levels of Technology Use in Classrooms: The Case of Jordan Schools. *Journal Of International Education Studies: Linking*, 3(2), 1-8. <https://pdfs.semanticscholar.org/fd4a/f00f0165145b41720ea79540106d2dcecb3.pdf>
- Omar M. Khasawneh, Yarmouk University-Irbid, Jordan & Al Ain University of Science and Technology, UAERuba M. Miqdadi, Yarmouk University-Irbid, Jordan Abdulhakeem Y. Hijazi, Yarmouk University-Irbid, Jordan. (2014). Implementing Pragmatism And John Dewey's Educational Philosophy In Jordanian Public Schools. *Journal Of International Education Research-First Quarter 2014*, 10(1), 1-18.
- Omar, K., Ahmed, K., & Mohammad, A. M. (2016). The Implications of Naturalism as an Educational Philosophy in Jordan from the Perspectives of Childhood Education Teachers. *Journal Of Education and Practice*, 71(1), 1-10. <https://files.eric.ed.gov/fulltext/EJ1099618.pdf>
- Oraib A. A., & Musa A. S. (2012). The Relationship between Achievement Motivation and Academic Achievement for Secondary School Students at Salt in Jordan. *Dirasat, Journal Of Education and Practice*, 1(1), 1-8. <https://journals.ju.edu.jo/DirasatEdu/article/view/3306>
- Penuel, W. R., Phillips, R. S., & Harris, C. J. (2014). Analysing teachers' curriculum implementation from integrity and actor-oriented perspectives. *Journal Of Curriculum Studies*, 46(6), 751-777. doi:10.1080/00220272.2014.921841
- Sarhan, K. A., Alzboon, S. O., Al Mufleh, K., & Al-Zboon, M. S. (2011). Features of computerized educational games in sciences of the elementary phase in Jordan from the point of view of specialists in teaching science and computer subjects. *Education*, 131(4), 865-884.
- Sonia Guerriero. (2015). Teachers' Pedagogical Knowledge and the Teaching Profession. *Journal Of Education and Practice*, 1(19), 1-10. www.oecd.org/edu/cei/ITEL_brochure_final.pdf
- Yurtseven, N., & Altun, S. (2017). Understanding by Design (UbD) in EFL Teaching: Teachers' Professional Development and Students' Achievement. *Educational Sciences: Theory & Practice*, 17(2), 437-461. doi:10.12738/estp.2017.2.0226