Service learning for improving academic success in students in primary and secondary education: a systematic review

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Background

Completion of upper secondary education marks the minimum threshold for successful labour market entry and continued employability as suggested by the Organisation for Economic Co-operation and Developments (OECD's) annual indicators on education and associated labour market outcomes (OECD, 2015). On average across OECD countries, unemployment risk of younger adults (25-34 year-olds) who have not completed upper secondary education is almost double the risk of those with higher educational qualifications (upper secondary and post-secondary non-tertiary education). A maintained focus on completion rates are necessary. Even though enrolment rates among 15 to 16 year olds (i.e. those typically in upper secondary programmes) are high; at least 95% on average across OECD countries in 2015 (OECD, 2018); far from all students graduate. According to OECD, only approximately 75 percent of students who had enrolled had graduated after two years. Further, of the students who had not graduated, 80 percent were no longer enrolled in education.

Many countries set specific targets for the completion rates of upper secondary education. For example the countries in the European Union (EU) agreed on a 10-year strategy proposed by the European Commission on 3 March 2010 for advancement of the economy of the EU (Europe 2020). One of the main targets is to reduce the share of early school leavers to 10% from the (at that time) current 15% and increase the share of the population aged 30–34 having completed tertiary from 31% to at least 40% (European Commission, 2010). Some countries go even further as for example Denmark, setting as a specific target, that upper secondary completion rates should be 95% and tertiary enrolment and completion rates should be 60% by 2020 (OECD, 2013a).

Not only graduation rates are important, the quality of the education received also matters for the educational prospects of young people and successful entry into the labour market. The shares of neither employed nor in education or training (NEET) are negatively related to the skill levels among young people (OECD, 2017a). The OECD's Programme for International Student Assessment (PISA) tests students near the end of their compulsory education (usually around age 15) on their reading ability, their skills in math and level in sciences. In general, the higher the percentage of low-performing 15-year-old students in PISA, the higher the percentage of NEETs among 15-19 year-olds (OECD, 2017a).

Having acquired some of the knowledge and skills that are essential for full participation in modern societies, particularly in reading, mathematics and science may be more reliable predictors of economic and social well-being than the number of years spent in school or in post-formal education (OECD, 2016). Research based on the 2012 Survey of Adult Skills (PIAAC) finds that poor proficiency in numeracy and literacy limits access to rewarding and well-paid jobs, and in addition is linked to poorer health and less social and political participation (OECD, 2013b).

There is, for these reasons, a significant interest in information about effective interventions to increase academic achievement and enhance educational prospects. The review we plan to conduct will focus on service learning in primary and secondary education. Service Learning is curriculum-based community service that integrates classroom instruction with community service activities. The connection with specific courses and having clearly stated learning objectives is what distinguishes service learning from other forms of volunteer work. Service learning should "address real community needs in a sustained manner over a period of time; and assist students in drawing lessons from the service through regularly scheduled, organized reflection of critical analysis activities, such as classroom discussions, presentations, or directed writing." (Pritchard, 2002, p.20).

Research shows that the student who participates in service learning may benefit both personally, socially and academically (e.g., Celio, Durlack & Dymnicki, 2011; RMC Research Corporation, 2002). Service learning, by connecting education to real world issues and allowing students to address problems they identify, may be particularly efficacious as it increases engagement and motivates students, in particular students who might not respond well to more traditional teaching methods (see, for example, Kraft & Wheeler, 2003; Scales & Roehlkepartain, 2005, and Bridgeland Dilulio, & Wulsin, 2008).

Motivation for learning and school engagement play a critical role in students' academic success (e.g. Fan & Wolters, 2012; Skaalvik & Valas, 1999). Motivated students tend to do better at school. According to OECD, students who are among the most motivated score the equivalent of more than one school year higher in PISA than the least-motivated students and motivation is further positively related to life satisfaction (OECD 2017b).

Policy relevance

The development of service learning as a pedagogical method that integrates community service into the course curriculum began in the 1970s, primarily in the US (Spring, Grimm, & Dietz, 2008). In the nineties, service learning became institutionalized in public education in the United States (Peterson & Seligman, 2004). In 1990 in USA, the National and Community Service Act created Serve America (today named Learn and Serve America), which was a federal programme dedicated

to providing grants and other supports for service learning activities in schools and community-based organizations. Further, in 1994, service learning became a recognized method for meeting the aims of federal school funding (included in the Elementary and Secondary Education Act). In addition to these federal policies, several states and school districts mandated the incorporation of service learning into the course curriculum (Spring et al., 2008).

Service learning is not yet as widespread in the rest of the world. However, the OECD-project 'Innovative Learning Environments' mentions service learning as a pedagogical method to put learners at the centre (the first of the seven principles of learning needed to redesign the learning environments to meet the challenges of the 21st century) (Dumont, Istance & Benavides, 2010). According to Furco (2010) "service-learning is one of the fastest growing educational initiatives in contemporary primary, secondary and post-secondary education" (Furco (2010) p. 228). Outside of the US, service-learning initiatives are part of the education systems of Argentina, Columbia and Singapore (Perold & Tapia, 2008; Ierullo, 2016; Chua, 2010). Argentina hosts the Latin American Center for Service-Learning (CLAYSS) which was created in 2002 to support students, educators, and community organizations in the development of service-learning projects in Latin America. Service learning is not part of any educational policy in Europe although the EU recognises service learning as a way of achieving citizenship education (European Commission/EACEA/Eurydice, 2017). Service learning is however emerging in many European countries including Germany, Ireland, Italy, Spain and the United Kingdom (Furco, 2010) and currently CLAYSS is assisting in the creation of the Central and Eastern European Service-Learning Network (Regina & Ferrara, 2017).

In several European nations there are organizations (non-profit community-based) with programmes dedicated to providing supports for service learning activities in schools (Luna, 2012): Lernen durch Engagement in Germany, Center for Frivilligt Socialt Arbejde in Denmark, Lernen durch Engagement in Switzerland, Noi-orizonturi in Romania, MOVISIE in the Netherlands and Fundación Tomillo in Spain.

Objectives

The main objective of this review is to answer the following research question: What are the effects of service learning on academic success, NEET status, personal and social skills and risk behaviour of students in primary and secondary education (grades kindergarten to 12)?

Further, the review will attempt to answer the question: do the effects differ among different groups of students such as high/low performers, high/low income families, or members of minority/non-minority groups, and does the quality of service learning have an impact on the magnitude of the effect?

Existing reviews

There are several literature reviews of studies conducted in the US (Billig, 2000, 2002, 2003, 2004). None of them is a systematic review and no data synthesis is performed in any of them. The review we plan to do differs in substantial ways from these existing reviews. It is systematic and a meta-analysis will be conducted.

Two systematic reviews with meta-analyses are found in Conway, Amel and Gerwien (2009) and Celio, Durlack and Dymnicki (2011), both performing searches up to spring 2008. The review by Conway et al. (2009) analysed four outcomes: academic, personal, social, and citizenship outcomes. They included studies of community service or volunteerism as well as service learning without distinguishing between these very different types of interventions (except in a moderator analysis), participants were not limited to primary and secondary education (although all results were shown separately for grade kindergarten to 12 students but without distinguishing between community service or volunteerism and service learning) and many of the included studies did not have control groups.

The review by Celio et al. (2011) required included studies to analyse service learning using a control group but participants were not limited to primary and secondary education. Five outcome areas were analysed: attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic achievement. Separate results for primary and secondary education (grades kindergarten to 12) was only shown for the overall effect, i.e. the mean of the five outcomes attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic achievement. The analysis of primary and secondary education outcomes did not take into consideration that more than one outcome per study was included in the meta-analysis (i.e., they did not take into account the dependencies between the effect sizes).

Besides being up to date, a major difference between these two systematic reviews and the current proposal is that we will focus on service learning for primary and secondary education, only include studies with a control group, all relevant outcomes areas will be analysed separately and we will take into consideration the dependencies between effect sizes.

Intervention

Service Learning is a curriculum-based community service that integrates classroom instruction (such as classroom discussions, presentations, or directed writing) with community service activities. Service learning may be mandatory or voluntary, and should have service activities that take place outside of the classroom. It should take place in the community including the school as part of the community. Service learning is organized in relation to an academic course or

curriculum and has clearly stated learning objectives. Service learning should address real community needs and involve students in drawing lessons from the service through regularly scheduled, organized reflection or critical analysis. Community service or extracurricular activities that do not integrate classroom instruction will be excluded.

The comparison population are students who are not engaged in service learning.

Population

The review will include children in primary and secondary education (grades kindergarten to 12) in general education.

The included grades correspond to primary and secondary school, defined as the first two steps in a three-tier educational system consisting of primary education, secondary education and tertiary or higher education. The number of years a child attend primary schooling varies across the OECD countries, though most often primary schooling is K-6 or K-9 after which secondary education begins (e.g., in form of high school). The former is the case for instance in France, Spain, Japan, UK, and most parts of Australia, and the second is the case for school systems in countries such as Italy, Turkey, Sweden and Denmark. The age range included will differ between countries, and sometimes between states within countries. Typically, ages range from 5-7 to 11-13. In some countries, kindergarten can however refer to preschool programs outside of primary school and include ages down to 2 years. Service learning targeting such populations will be excluded; that is, kindergarten must be considered a part of primary school for a study to be included.

Grades 7-12 corresponds roughly to secondary school, defined as the second step in a three-tier educational system. The number of years a child attend secondary schooling varies across the OECD countries, though most often secondary schooling is grades 7-12 or 10-12. The former is the case for instance in France, Spain, Japan, UK, and most parts of Australia, and the second is the case for school systems in countries such as Italy, Turkey, Sweden and Denmark. The age range included will differ between countries, and sometimes between states within countries. Typically, ages will range from 12-14 to 17-19.

Studies that meet inclusion criteria will be accepted from all countries. We will exclude children in home school and in preschool programs.

Outcomes

Primary outcomes

The primary focus is on measures of academic success and NEET status (neither employed nor in education or training post compulsory school). The primary outcomes are:

- scores on students' achievement tests
- attendance
- drop-out
- employment, education, training (NEET status)

Concerning scores on students' achievement tests, only standardised measures will be included, i.e. standardised literacy tests (e.g. reading, spelling and writing), standardised numeracy tests (e.g. mathematical problem-solving, arithmetic and numerical reasoning, grade level math), standardised test in other academic subjects (e.g. in science or second language), and measures of global academic performance (e.g. Woodcock-Johnson III Tests of Achievement, Stanford Achievement Test (SAT), Grade Point Average).

Although we do not expect to find studies reporting follow up outcomes in the long run (post compulsory school), NEET status is included as a primary outcome.

Secondary outcomes

A secondary focus is on measures of personal and social skills and risk behaviour (such as drug and alcohol use, violent behavior, sexual risk taking).

Only valid and reliable outcomes that have been standardised on a different population (and is 'objective', i.e. not 'experimenter-designed') will be included. Examples of valid outcomes are measures from the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) or the revision of the SSRS, called the Social Skills Improvement System-Rating Scales (SSIS-RS; Gresham & Elliott, 2008) and the Academic Competence Evaluation Scales (ACES) (DiPerna & Elliott, 1999).

It will be reported if any potential adverse effects have been evaluated in any included studies.

Study designs

The proposed project will follow standard procedures for conducting systematic reviews using meta-analysis techniques.

Randomised controlled trials will be included. In order to summarise what is known about the possible causal effects of service learning, we will include all study designs that use a well-defined control group. Non-randomised studies, where service learning has occurred in the course of usual decisions outside the researcher's control, must demonstrate pre-treatment group equivalence via matching, statistical controls, or evidence of equivalence on key risk variables and participant characteristics. These factors will be outlined in the protocol, and the methodological appropriateness of the included studies will be assessed according to a risk of bias model.

The study designs we will include in the review are:

A. Randomised controlled trials (where all parts of the study are prospective, such as identification of participants, assessment of baseline, and allocation to intervention, and which may be randomised, quasi randomised or non-randomised), assessment of outcomes and generation of hypotheses (Higgins & Green, 2011).

B. Non-randomised studies (service learning has occurred in the course of usual decisions, the allocation to service learning and no service learning is not controlled by the researcher, and there is a comparison of two or more groups of participants, i.e. at least a treated group and a control group).

References

Billig, S. H. (2000). Research on K-12 school-based service-learning: The evidence builds. *Phi Delta Kappan, 81*, 658-664.

Billig, S. H. (2002). Support for K-12 service-learning practice: A brief review of the research. *Educational Horizons, 80*, 184-189.

Billig, S.H. (2003). *Using evidence to make the case for service-learning as an academic achievement intervention in K-12 schools.* Retrieved October 10, 2018, from *https://dpi.wi.gov/sites/default/files/.../service-learning/.../slbillig.do*

Billig, S. H. (2004). Heads, hearts, and hands: The research onK-12 service-learning. In *Growing to greatness: The state of service-learning project* (pp.12-25). St. Paul, MN: National Youth Leadership Council.

Billig, S. H. & Weah, W. (2008) K-12 Service Learning Standards for Quality Practice. *Growing to Greatness: The State of Service Learning, 2008*, 8-15. Saint Paul, Minn.: National Youth Leadership Council, 2008.

Bridgeland, J. M., Dilulio, J. J., Jr., & Wulsin, S. C. (2008, April). *Engaged for Success: Service-Learning as a Tool for High School Dropout Prevention.* A Report by Civic Enterprises: *http://www.civicenterprises.net*

Celio, C.I., Durlak, J. and Dymnicki, A (2011) A Meta-analysis of the Impact of Service-Learning on Students. *Journal of Experimental Education, 34*(2), 164–181. 10.5193/JEE34.2.164.

Cheung, A.C.K. & Slavin, R.E. (2016). How Methodological Features Affect Effect Sizes in Education. *Educational Researcher, 45*(5), pp. 283-292. DOI: 10.3102/0013189X16656615

Chua, Cheng Chye. Rethinking Community-Service Education in Singapore Schools. (2010). *Social Space*. 94-97. Social Space. https://ink.library.smu.edu.sg/lien_research/67

Conway, J. M., Amel, E. L., & Gerwien, D. P. (2009). Teaching and learning in the social context: A meta-analysis of service learning's effects on academic, personal, social, and citizenship outcomes. Teaching of Psychology, 36, 233–245. doi:10.1080/00986280903172969

DiPerna, J.C., & Elliott, S.N. (1999). The development and validation of the Academic Competence Evaluation Scales. *Journal of Psychoeducational Assessment, 17*, 207–225.

Dumont, H., Istance, D. & Benavides, F. (eds.) (2010), *The Nature of Learning: Using Research to Inspire Practice*, *Practitioner Guide*. Educational Research and Innovation, OECD Publishing, Paris. http://www.oecd.org/education/ceri/50300814.pdf

European Commission (2010), *Europe 2020 - A European strategy for smart, sustainable and inclusive growth*, Communication from the Commission, European Commission, Brussels. Retrieved from: (http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf).

European Commission/EACEA/Eurydice, 2017. *Citizenship Education at School in Europe – 2017*. Eurydice Report. Luxembourg: Publications Office of the European Union. doi:10.2797/536166

Fan, W. & Wolters, C.A. (2014). School motivation and high school dropout: The mediating role of educational expectation. *British Journal of Educational Psychology, 84*, 22–39. DOI:10.1111/bjep.12002

Furco, A. (2010). The community as a resource for learning: an analysis of academic service-learning in primary and secondary education. In Dumont, H., Istance, D. & Benavides, F. (eds.) (2010), *The Nature of Learning: Using Research to Inspire Practice*, Educational Research and Innovation, OECD Publishing, Paris, https://doi.org/10.1787/9789264086487-en chapter 10.

Gresham, F. M., & Elliott, S. N. (1990). *The Social Skills Rating System.* Circle Pines, MN: American Guidance Service.

Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System: Rating Scales.* Bloomington, MN: Pearson Assessments.

Higgins, J.P.T. & Green, S. (eds) (2011). *Cochrane Handbook for Systematic Reviews of Interventions.* Version 5.1.0 [updated March 2011]. Wiley-Blackwell The Cochrane Collaboration. Available from www.cochrane-handbook.org.

Ierullo, M. (2016). The Institutionalization of Service-Learning Projects in Argentine Schools. *International Journal of Research on Service-Learning and Community Engagement, 4*(1), 351-354. http://journals.sfu.ca/iarslce

Kraft, N. & Wheeler, J. (2003) "Service Learning and Resilience in Disaffected Youth: A Research Study." In *Deconstructing Service Learning: Research Exploring Context, Participation, and Impacts*, ed. Janet Eyler and Shelley H. Billig, 213-238. Greenwich, Conn.: Information Age Publishing, 2003.

Luna, E. (2012). *What about Service Learning in Europe?* Barcelona: Universitat de Barcelona. Dipòsit Digital. Retrieved from: http://diposit.ub.edu/dspace/bitstream/2445/27563/1/What%20about%20SL%20in%20Europe%20DEFINTIU.pdf

OECD Education policy outlook: Denmark © OECD 2013a.

OECD (2013b), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills,* OECD Publishing. *http://dx.doi.org/10.1787/9789264204256-en*

OECD (2015), *Education Policy Outlook 2015: Making Reforms Happen*, OECD Publishing. *http://dx.doi.org/10.1787/9789264225442-en*

OECD (2016), *Low-Performing Students: Why They Fall Behind and How to Help Them Succeed,* PISA, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264250246-en.*

OECD (2017a), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris. *http://dx.doi.org/10.1787/eag-2017-en*

OECD (2017b), *PISA 2015 Results (Volume III): Students' Well-Being,* PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264273856-en

OECD (2018). *Better life index: Education*. Retrieved from: http://www.oecdbetterlifeindex.org/topics/education/

Perold, H. & Tapia, M.N. (eds.) (2008) Service Enquiry: Civic Service and Volunteering in Latin America and the Caribbean. Volume 2. Buenos Aires: Centro Latinoamericano de Aprendizaje y Servicio Solidario; Johannesburg: Volunteer and Service Enquiry Southern Africa; Washington University in St Louis: The Center for Social Development; Washington DC: Innovations in Civic Participation. Retrieved from <www.service-enquiry.org.za>.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. NY: Oxford University Press and Washington, DC: American Psychological Association.

Pritchard, I. (2002). Community service and service-learning in America: The state of the art. In A. Furco & S. Billig (Eds.), *Service-learning: The essence of pedagogy* (p. 3-22). Greenwich, CT: Information Age Publishing.

Regina, C. & Ferrara, C. (2017). Service-learning in Central and Eastern Europe handbook for engaged teachers and students. CLAYSS, 2017. http://www.clayss.org/04_publicaciones/SL-EE_nov17.pdf

RMC Research Corporation (2002). Impacts of Service-Learning on Participating K-12 Students. Source: RMC Research Corporation, December 2002, updated May 2007. https://gsn.nylc.org/groups/410/documents/1453

Scales, P.C. & Roehlkepartain, E.C. (2005), Can Service-Learning Help Reduce the Achievement Gap? In the National Youth Leadership Council. NYLC's Growing to Greatness: The State of Service Learning Project, Saint Paul, Minnesota 2005

Skaalvik, E. M., & Valas, H. (1999). Relations among achievement, self-concept, and motivation in mathematics and language arts: A longitudinal study. The Journal of Experimental Education, 67, 135–149. doi:10.1080/00220979909598349

Spring, K., Grimm, R. & Dietz, N. (2008) *Community Service and Service-Learning in America's Schools*, Corporation for National and Community Service, Office of Research and Policy Development, Washington, DC 2008.

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Lead review author: The lead author is the person who develops and co-ordinates the review team, discusses and assigns roles for individual members of the review team, liaises with the editorial base and takes responsibility for the on-going updates of the review.

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Roles and responsibilities

Give a brief description of content and methodological expertise within the review team. It is recommended to have at least one person on the review team who has content expertise, at least one person who has methodological expertise and at least one person who has statistical expertise. It is also recommended to have one person with information retrieval expertise.

Trine Filges: is an experienced systematic reviewer and methodologist, having completed a number of systematic reviews in social welfare topic areas as well as in the field of education. She has published thirteen Campbell Systematic reviews, is currently the lead reviewer on three Campbell Systematic Reviews, further involved as a reviewer in two Campbell Systematic Reviews and has published systematic and meta-analytic reviews in high-impact journals. Trines fields of expertise are systematic review methods and statistical analysis; and she will contribute to the quantitative data extraction, methodological quality appraisal and meta-analysis.

Jens Dietrichson: is an educationalist, experienced systematic reviewer and methodologist, having completed a number of systematic reviews in field of education and has published systematic and meta-analytic reviews in high-impact journals. He is currently the lead reviewer on two Campbell Systematic Reviews and is knowledgeable regarding all major facets of meta-analytic methods and their application. Jens's fields of expertise are systematic review methods and statistical analysis; and he will contribute to the quantitative data extraction, methodological quality appraisal and meta-analysis.

Bjørn Christian Arleth Viinholt: has three years of experience in developing and writing systematic reviews. As a part of undertaking systematic reviews, Bjørn has experience in developing systematic search strategies and processes of reference management. Bjørn will contribute with assisting and development of the systematic search strategy, reference management and grey literature searches for this review – as well as assisting with aspects relating to systematic literature searches in Campbell review methodology.

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Potential conflicts of interest

None known

Preliminary timeframe

Note, if the protocol or review is not submitted within six months and 18 months of title registration, respectively, the review area is opened up for other authors.

- Date you plan to submit a draft protocol: within 6 months of title registration

- Date you plan to submit a draft review: within 18 months of protocol approval