



Soft Skills In The Teachers' Professional Development Perspective

Trisnaningsih^{1,*}, Risma Margaretha Sinaga¹, Pujiati¹, Buchori Asyik²

¹Postgraduate School of Social Science Education, University of Lampung, Indonesia.

²Department of Geography Education, University of Lampung, Indonesia.

*Corresponding email: trisna_unila@yahoo.co.id

Received: 02 September 2018 Accepted: 17 September 2018 Online Published: 31 October 2018

Abstract: Soft skills in the teachers' professional development perspective. Objectives:

This study aims to determine the role of soft skills in teacher professional development. **Methods:** This study used a survey method for a number of Social Sciences Education teachers in junior high schools. Data was collected using a questionnaire regarding teacher identity and soft skill instruments as a result of development that had been expertly tested and small group tests according to the Borg and Galls design. **Findings:** There was a significant relationship between age and the quality of soft skills scores ($r = -0.292, p < 0.05$). In line with that, a negative correlation was also obtained between age and personal attributes ($r = -0.287, p < 0.05$). **Conclusions:** Soft skills tended to decrease for teachers as they grew older, the soft skills the teachers had differed in terms of rank and class and Soft skills were closely related to teacher professional development.

Keywords: Soft skills, social demography, professionalism.

Abstrak: Soft skills dalam perspektif pengembangan profesi guru. Tujuan: Penelitian ini bertujuan untuk mengetahui peran soft skill dalam pengembangan profesional guru. **Metode:** Penelitian ini menggunakan metode survei untuk sejumlah guru Pendidikan Ilmu Sosial di sekolah menengah pertama. Data dikumpulkan dengan menggunakan kuesioner tentang identitas guru dan instrumen soft skill sebagai hasil pengembangan yang telah diuji secara ahli dan tes kelompok kecil sesuai dengan desain Borg dan Galls. **Temuan:** Terdapat hubungan yang signifikan antara usia dan kualitas skor soft skill ($r = -0.292, p < 0,05$). Sejalan dengan itu, korelasi negatif juga diperoleh antara usia dan atribut pribadi ($r = -0,287, p < 0,05$). **Kesimpulan:** Soft skill cenderung menurun untuk guru seiring bertambahnya usia mereka, soft skill yang dimiliki guru berbeda dalam hal peringkat dan kelas dan soft skill berhubungan erat dengan pengembangan profesional guru.

Keywords: Soft skill, demografi sosial, profesionalisme.

To cite this article:

Trisnaningsih, T. Sinaga, R. M., Pujiati, P., Asyik, B. (2019). Soft Skills in the Teachers' Professional Development Perspective. *Jurnal Pendidikan Progresif*, 9(1), pp. 44-52. doi:10.23960/jpp.v9.i1.201906

■ INTRODUCTION

Professionalism is the keyword in every type of work someone does regardless of the type of work, because professionalism in work will deliver workers to productivity and high-quality work (Roseler, K., & Dentzau, M. W. (2013). In the education world, professionalism is more directed to the teacher as the organizer in learning. However, professional teachers are not only needed for learning but also for the continuous development of their careers.

The professionalism of each teacher is determined by hard skills and soft skills. Both of these are demands that every teacher must have to become a successful teacher in his career. In hard skills, such as the level of education someone has does not guarantee they will become a successful worker. In many studies, it was found that the role of soft skills as software actually supported someone's career success in the workforce (Tran, T. T, 2013; Lanigan, J. D, 2011; 153; Levenson, E., & Gal, H, 2013). Therefore, soft skills become an interesting object that is currently widely discussed to become a successful worker.

Soft skills as the development of emotional intelligence (EI) have several components that are interrelated with each other. Emotional intelligence is classified into five elements, namely: 1) self-awareness, 2) self-regulation, 3) motivation, 4) empathy, and 5) social skills (Devadason, E. S., Subramaniam, T., & Daniel, E. G. S, 2010). In the Student Soft Skills Development Guide, it is explained that based on research conducted by UK, American and Canadian countries there are 23 attributes of soft skills that dominate employment. All of them are sorted by interests in the world of work, namely: 1) Initiative, 2) Ethics/integrity, 3) Critical thinking, 4) Willingness to learn, 5) Commitment, 6) Motivation, 7) Excited, 8) Reliable, 9) Oral communication, 10) Creative, 11) Ability to analyze, 12) Can overcome stress, 13) Self-management, 14) Resolve problems,

15) Can summarize, 16) Competence, 17) Flexible, 18) Work in teams, 19) Independent, 20) Listening, 21) Tough, 22) Logical argumentation, 23) Time management (Blanton, M. L., & Stylianou, D. A, 2009).

The components of soft skills are very complex, almost all the characters that exist in humans. The elements that make perfect are: 1) Obedience to worship, 2) Communication skill, 3) Establishment of the nature of responsibility, 4) Honesty and timely, 5) Hardworking, 6) Dare to take risks, 7) Accustomed to work in groups, 8) Householding skill, and 9) Visionary (Elfindri, et al., 2010: 95). From a number of indicators, basically soft skills include aspects of personality attributes (intra-personal) and social attributes (interpersonal).

Personality or relevant to (Intra-Personal Skills) which mean skills in managing themselves. The examples of Intra-Personal Skills are honesty, responsibility, tolerance, respecting for others, the ability to cooperate, being fair, the ability to make decisions, the ability to solve problems, managing change, managing stress, managing time, and carrying out self-transformation (Connor, A., Sung, C., Strain, A., Zeng, S., & Fabrizi, S. (2019). Whereas if we look at some examples of personality competencies, that the teachers as role models for their students must have a whole attitude and personality that can be used as an idol role model in all aspects of life. Therefore, teachers must always try to choose and do positive actions in order to lift their good image and authority, especially in front of their students (Stahnke, R., Schueler, S., & Roesken-Winter, B, 2016).

How the role of soft skills in learning is the main focus of this article. Soft skills, the abilities related to personality competencies and social competencies are important parts that can improve one's performance to achieve success in their work (Chen, J. J., Martin, A., & Erdosi-Mehaffey, V, 2017). This article aims to explain the role of soft skills in the teacher professional

development on an ongoing basis. The data were sourced from large group field trials of teachers participating in the teacher discussion activities of Social Sciences Subject.

■ METHOD

This research is development research (Research & Development / R & D) from Borg and Gall (2003). Research development design (R & D) consists of 10 stages of activities which are grouped into 3 research stages, namely: I. Preliminary studies and product development: 1) literature studies, 2) theoretical exploration and study; and 3) product design, II. Limited trials: 4) expert validation, 5) small-scale product trials in the form of soft skill measurement instruments, 6) instrument feasibility analysis, and 7) soft skill measurement instrument models, III. Tests in the field: 8) large group field trials, 9) analysis of the effectiveness of the resulting soft skill instruments, and 10) soft / effective skill instrument products.

The location of this study is in Bandar Lampung City and South Lampung Regency. The study population were all junior high school teachers who took part in the discussion activities of Social Sciences Teachers' Forum (MGMP IPS). Determination of the target population for the application of soft skills instruments with the following considerations: 1) IPS MGMP is the official forum for well-organized teacher associations, 2) IPS MGMP meetings in both regions are held regularly every month, 3) In the IPS MGMP meeting attended by teachers from public and private schools, and 4) social study teachers present vary in rank / career and many are certified educators, making it easier to get teachers who have carried out continuous professional development. The technique for determining the location of the study is classified as a purposive sampling technique. The number of samples is 110 people determined by the lottery.

The variable in this study is the quality of teacher soft skills. The measurement of teacher soft skills uses 2 components or attributes, namely: 1. Personality attributes (personal) and 2. Social attributes (interpersonal). Personality attributes consist of 4 indicators, namely: 1) Personality integrity (ethics, morals, professionals), 2) Lifelong learning and information management skills, 3) Self-development / career skills / self-development skills, 4) Creativity in work (4) critical thinking skills and problem solving. Social attributes consist of: 1) communication skills, 2) cooperative skills, 3) research and investigation skills, 4) leadership skills. The eight indicators were then formulated into 100 statements. Each statement is given four alternative answers to the Likert scale model that are simplified with the following assessment: Very good with a score of 4, 3 for the Good level, 2 for the Lower level, and 1 for the Very Less level. Soft skill scores are in the range between the lowest score of 100 and the highest score of 400, soft skills are said to be good if the score is equal to or more than 300 and soft skills are low if the score is less than or below 200, and soft skills are in the score 200-300 .

The data collection tool uses soft skill instruments that have been developed and carried out in the testing phase of validity starting from expert testing and small group testing. The data obtained in this study are data from the results of large group field tests. The data obtained was processed using SPSS version 23 software and parametric statistics of the Product Moment correlation and Non-parametric Cross Table statistics. Correlation analysis to analyze the relationship between teacher's age and soft skills and the relationship between the length of work and the teacher's soft skills, while the cross table analysis was conducted to analyze differences in soft skills from the background of the teacher's career level.

■ **RESULTS AND DISCUSSION**

1. Demographic Aspects

Identity illustrated the inherent condition of a person, it could be explained from demographic and socio-economic aspects. Age was the most important variable from the demographic aspect which greatly influences work productivity. Young age was identical to high work productivity, on the contrary work productivity would decrease along with the increasing age of workers.

Participant from Social science teachers forum in this research have an average age of 43.02 years which could be said no longer be in the criteria of young age (<30 years). Their performance had also been classified as good, as indicated by their accomplishments. It was found that more than half of 60.9% of teachers had reached a fairly high level of rank > 3d and had been certified educators (69.1%). At a young age, there were usually not many health complaints felt by a person (teacher), so they were able to work for a long time and had a large volume of work, making it more likely to work under pressure.

Table 1. Teacher's demographic aspects

Age (year)	Total	%
< 40	34	30.9
40-50	47	42.7
>50	29	26.4
Total	110	100.0
Average: 43.02		
Gender		
Male	20	18.2
Female	90	81.8
Total	110	100.0

In addition, 81.8% or 90 teachers at the IPS MGMP, which is dominated by female teachers and with a work period of 17.45 years, can be said to have sufficient work experience. This can be one of the supporting factors for

the development of the teacher's career going forward.

2. Job Aspects of Teachers of MGMP IPS Participants

Teacher ratings and classes are obtained through a mechanism for submitting proposals and fulfilling scores according to all conditions set. Promotions / classes from 3b to 3c have applied the requirements for scientific papers written by the teacher even though not as the first author or only as a member. The ranks / classes of social studies teachers in the MGMP forum were mostly 60.9% categorized as seniors, namely group IVa. Until this rank / class the teachers have carried out various activities in continuous professional development. These activities include self-development activities, scientific publications, and innovative work.

Table 2. Teacher employment background

Rank/Group Level	Total	%
< 3c	16	14.6
3c-3d	17	15.5
> 3d	67	60.9
Total	110	100.0
Teaching Duration (years)		
< 10	30	27.3
10-20	44	40.0
>20	36	32.7
Total	110	100.0
Average: 17.45		
Certified Educator Status		
Certified Educator	76	69.1
Not Certified Educator	34	30.9
Total	110	100.0

Teachers in the MGMP IPS in this study have a long service life with an average of 17.45 years and most of the 69.1% have certified educators. This means that they are teachers who have been recognized as professional teachers with high competence both

academically (hard skills) and non-academic (soft skills).

3. Teachers' Soft Skills at the MGMP IPS

3.1 Personality Attributes (Personal)

Personality attributes (personal) are skills that a person has in managing himself. The ability of MGMP IPS teachers to regulate themselves, especially on indicators of personality integrity, is higher than the other three indicators (lifelong learning & information management skills, self-development / career development skills, and creativity in work and problem solving) (Table 3). Indicators of personality integrity reveal self-conditions related to ethics, morals, and professionalism. Teacher ethics and morals are manifested in their behavior in accordance with regulations that apply both in school and in the community. The personality integrity of the teachers of the IPS MGMP participants in this study was found primarily in interacting with students, colleagues, superiors, and other educational personnel. The behaviors that arise in these interactions are honest, consistent, obeying the rules, and able to overcome problems related to ethics. This behavior is personality competence or self-management ability (Kwakye, T. O., Welbeck, E. E., Owusu, G. M. Y., & Anokye, F. K., 2018). Personality integrity is positive, empathic, commitment to institutions and professionals (González, C, 2012; Coates, 2006).

Indicators of personality integrity are more related to the relationship between individuals and creators, norms of religious life, and norms of social life. While the other three indicators in the group of personal attributes are mostly related to encouragement or intrinsic motivation or motivation in the individual to develop. These three indicators will move a person to do something and his creative abilities.

Another personal attribute that is quite good in supporting the teacher's career in this research is creativity in working and solving

problems. While lifelong learning and management skills, self-development, and creativity in the workplace, the value is lower. Lifelong learning is a key word in the world of education and everyone who is educated. This spirit must occupy a prominent part of each teacher (Zhu, G., Waxman, H., Rivera, H., & Burlbaw, L. M, 2018).

In this study, the low enthusiasm for lifelong learning and information management skills is supported by a weak ability to promote themselves to others with a higher status in their work. This can be caused by low self-confidence (Knobe, M., Holschen, M., Mooij, SC, Sellei, RM, Munker, R., Antony, P., ... & Pape, HC (2012). , quite a number of teachers are less able to collect and rank the information they obtain so that teachers do not have the

Tabel 3. Teachers' personal softskills attributes at the teachers' forum

Personal Attribute	Total	%
1. Personality Integrity (score)		
Low: <30	1	0.9
Medium: 30-41	18	16.4
High: > 42	91	82.7
Total	100	100.0
2. Lifelong Learning & Information Management Skills (score)		
Low : < 23	1	0.9
Medium : 23-32	44	40.0
High : > 32	65	59.1
Total	110	100.0
3. Personal Development or Career Building Skills (score)		
Medium : 31-44	40	36.4
High : > 44	70	63.6
Total	110	100.0
4. Creativity in Working and Solving Problems (score)		
Medium : 25-35	23	20.9
High : > 35	87	79.1
Total	110	100.0

ability to develop their minds and seek knowledge to apply information creatively to certain problems or tasks and lack the ability to understand and use the organizing principle in their work .

3.2 Social Attributes (Interpersonal)

Social attributes are skills related to or interacting with the environment of their community groups and working environment and interactions with fellow human beings so that they are able to develop maximum performance (Dong, S., Miles, L., Abell, N., & Martinez, J, 2018). The measurement of soft skills for social attributes in this research used four indicators, namely: communication skill, work skill, research and investigative skills, and leadership skill.

On social attributes, communication skills and work skills were the main supporters of teachers' professional development in this research. The profession as a teacher dealing directly with the subject of his work was human, required good communication skills to interact with various parties, such as students, fellow teachers, superiors (principals), and parents or guardians of students. This high ability was mainly in communicating with fellow teachers, education staff, students, and conveying ideas clearly and confidently. Communication skills are very much needed in career development, many workers failures in their careers because of lack of communication are found in the research of Calengosi and Petersen (Zitter, I., De Bruijn, E., Simons, P. R. J., & Ten Cate, T. J, 2011).

However, other important aspects of communication that were still inadequate in the hands of social studies teachers in this research related to the use of technology during presentations and communicated using media formats to present ideas imaginatively. Likewise, in the use of various forms and styles of written communication, the teachers were still unable to master. The communication skills experienced by social studies teachers in this research were

found to be related to communicating digitally using various technologies that were currently developing that could be used in academic activities. While the communication skills mastered by the MGMP IPS teachers were verbal communication skills.

Table 4. Social attributes (interpersonal) soft skills of social science teachers

Social Atributes		
1. Communication Skill	Total	%
Medium: 31-44	27	24.5
High: > 44	83	75.5
Total	110	100.0
2. Work Skill		
Medium: 35-67	26	23.6
High: > 67	84	76.4
Total	110	100.0
3. Research and Investigation Skill		
Low: < 13	2	1.8
Medium: 13-17	21	19.1
High: >17	87	79.1
Total	110	100.0
4. Leadership Skill		
Low: < 21	2	1.8
Medium: 21-29	31	28.2
High: >29	77	70.0
Total	110	100.0

For indicators of work skills in social attributes of social studies teachers in this research, most of 76.4% or 84 teachers were classified as good, indicated by their ability to interact effectively with peers, superiors, and subordinates, their ability to maintain collaboration with group support, and responsible for group decisions that were classified as good and very well stated by all teachers. These three aspects were part of a system that required cooperation between the supporters of the system, so that it could work well. This was found in a study conducted by

McMurtry, A., Wilson, K., Clarkin, C., Walji, R., Kilian, B. C., Kilian, C. C., ... & Busse, J. W. (2015) that the attributes of soft skills must primarily be focused on problem-solving and collaboration.

However, the work skills of MGMP IPS participating teachers in this research appeared to be weaker in relation to the challenges they faced in completing work. As many as 30.0% or 33 teachers stated that they were unable to work under time and environment pressure and taught others skills, concepts or principles.

3.3 The Role of soft skills in professional teacher sustainable development

3.3.1 Teacher soft skills according to demographic factors

Teacher certification was the expectation of all teachers and to obtain it many requirements must be met, it became increasingly stringent and difficult compared to the start of the program. Referring to the results of the analysis above, it was necessary to examine the relationship between the identity inherent in each teacher, such as demographic aspects (age) and teacher employment status (civil servants, non-civil servants).

Through correlational analysis using Correlation Product Moment statistics obtained $r = -0.292$, $p = 0.002 < 0.05$. There was a significant relationship between age and the quality of soft skills scores, where the relationship was negative. This means that if the age increased, then the soft skills, on the contrary, the quality would decrease. A negative correlation was also obtained between age and personal attributes, where $r = -0.287$ with $p = 0.002 < 0.05$. Social attributes that contained four components: 1) Personality integrity, 2) Lifelong learning, 3) Self-development/Career building skill, 4) Creativity in work. Similarly, a negative relationship between interpersonal attributes and teacher age was obtained, where $r = -0.283$ with $p = 0.003 < 0.05$. Thus, the

soft abilities of the personal and inter personal (social) aspects were better for young teachers than for older teachers. Creativity in working was better quality for young teachers than old teachers. Getting older, getting less energetic, so that it made it difficult to expect teachers who were already in the age group 50 years and over to do a lot of activities in PKB. Creativity at work was better quality for young teachers than old teachers.

Most of the teachers' careers quit in group 4a, because the requirements that cannot be met to propose to group 4b, namely independent research or having scientific work as the main author. Social studies teachers at old age may felt tired and lazy to research and write, they worked in the comfort zone only in classroom learning activities (Groh, M., Krishnan, N., McKenzie, D., & Vishwanath, T, 2016). This finding implied that PKB must be directed to young teachers with high soft skills, still fresh, healthy, and eager to be directed towards activities other than learning (scientific works and innovative works).

3.3.2 Teachers' soft skill according to staff status

The staffing status of social studies teachers in this research was divided into two, namely the status of Civil Servants (PNS) and non-civil servants. In this research, more teachers were found as civil servants than teachers who were not civil servants. This research also obtained a relationship between employment status and insignificant soft skills, $p = 0.303 < 0.05$, meaning that the quality of soft skills was not influenced by their status as civil servants or non-civil servants. The significant influence was seen in the attribute aspects of the soft skills, each of which showed a significant effect, where $p = 0.025 < 0.05$ between staffing status with personal attributes and $p = 0.009 < 0.05$ between employment status and interpersonal attributes (social). This

means that teachers who were civil servants with the ability to manage themselves were higher than teachers who were not civil servants. Conversely, teachers who were not civil servants had the ability to manage others better than their self-regulating abilities. Soft skills differences in employment related to job level or career in one job had been found in research (Serafini, M., 2018; Roan & Whitehouse, 2007).

3.3.2 Teachers' soft skills according to educator certification status

Basically, sustainable professional development is part of the teachers' rights that they could obtain in the form of career advancement. The three components in PKB (self-development, scientific work, innovative work) were all requirements that must be fulfilled by the teachers when proposing an increase in the level of class/rank in their position by calculating the score according to rank/class. Teachers' career hierarchy applied absolutely to teachers who were civil servants and also applied to teachers who would take teacher professional education. Graduation was proven by the ownership of an educator certificate from the teacher concerned and the teacher would get additional welfare in the form of additional income of one-month basic salary.

The teachers who already had an educator certificate were expected not to stop only at that stage, but instead must be able to develop their profession on an ongoing basis. For this reason, the synergistic role between their hard skills and soft skills improved the teachers' PKB in developing their career. Regarding soft skills, this research had a significant influence between the status of teachers who had passed teacher certification and those who had not passed teacher certification where $p = 0.013 < 0.05$. This figure showed that soft skills played an important role in becoming a professional teacher. It could be said that teachers who were certified educators had better soft skills than

teachers who were not yet certified educators. Therefore, soft skills played a big role in supporting the success of teachers so that they could graduate in participating in the teacher certification program. Soft skills could improve performance also found in this research as found in the study of Widayanti (without years), Körner, M., & Wirtz, M. A. (2013); Berry, S (2012). The ability of teachers (someone) to manage themselves supports success in their careers (Engelbrecht, W., & Ankiewicz, P, 2016).

■ CONCLUSION

The main points in the findings of this study are that the soft skills of the teacher participants were negatively related to the age of the teacher. Young teachers have soft skills that are better than older teacher soft skills. Then, the soft skills of teachers as civil servants are lower than the soft skills of teachers who are not civil servants. In addition, the soft skills of teachers who have passed teacher certification are better than the soft skills of teachers who have not been certified educators. The main points of the findings then showed that the soft skills of the IPS MGMP participants were significantly related to their career development.

■ REFERENCES

- Berry, S (2012). Professional development for online faculty: instructors' perspectives on cultivating technical, pedagogical and content knowledge in a distance program. *Journal of Computing in Higher Education*, 1-16.
- Blanton, M. L., & Stylianou, D. A. (2009). Interpreting a community of practice perspective in discipline-specific professional development in higher education. *Innovative Higher Education*, 34(2), 79-92.
- Borg, W.R., and Gall, M.D., 2003. *Education Research (An Introduction)*, 7th Ed.

- Pearson Education Inc. United States of America.
- Chen, J. J., Martin, A., & Erdosi-Mehaffey, V. (2017). The process and impact of the infant/toddler credential as professional development: Reflections from multiple perspectives and recommendations for policy. *Early Childhood Education Journal*, 45(3), 359-368.
- Connor, A., Sung, C., Strain, A., Zeng, S., & Fabrizi, S. (2019). Building Skills, Confidence, and Wellness: Psychosocial Effects of Soft Skills Training for Young Adults with Autism. *Journal of autism and developmental disorders*, 1-13.
- Devadason, E. S., Subramaniam, T., & Daniel, E. G. S. (2010). Final year undergraduates' perceptions of the integration of soft skills in the formal curriculum: a survey of Malaysian public universities. *Asia Pacific Education Review*, 11(3), 321-348.
- Dong, S., Miles, L., Abell, N., & Martinez, J. (2018). Development of Professional Identity for Counseling Professionals: A Mindfulness-Based Perspective. *International Journal for the Advancement of Counselling*, 40(4), 469-480.
- Engelbrecht, W., & Ankiewicz, P. (2016). Criteria for continuing professional development of technology teachers' professional knowledge: A theoretical perspective. *International Journal of Technology and Design Education*, 26(2), 259-284.
- González, C. (2012). The relationship between approaches to teaching, approaches to e-teaching and perceptions of the teaching situation in relation to e-learning among higher education teachers. *Instructional Science*, 40(6), 975-998.
- Groh, M., Krishnan, N., McKenzie, D., & Vishwanath, T. (2016). The impact of soft skills training on female youth employment: evidence from a randomized experiment in Jordan. *IZA Journal of Labor & Development*, 5(1), 9.
- Kim, K. T. (2010). Connecting administrative and professional perspective in the era of accountability. *Asia Pacific Education Review*, 11(3), 433-445.
- Knobe, M., Holschen, M., Mooij, S. C., Sellei, R. M., Munker, R., Antony, P., ... & Pape, H. C. (2012). Knowledge transfer of spinal manipulation skills by student-teachers: a randomised controlled trial. *European Spine Journal*, 21(5), 992-998.
- Körner, M., & Wirtz, M. A. (2013). Development and psychometric properties of a scale for measuring internal participation from a patient and health care professional perspective. *BMC health services research*, 13(1), 374.
- Kwakye, T. O., Welbeck, E. E., Owusu, G. M. Y., & Anokye, F. K. (2018). Determinants of intention to engage in Sustainability Accounting & Reporting (SAR): the perspective of professional accountants. *International Journal of Corporate Social Responsibility*, 3(1), 11.
- Lanigan, J. D. (2011). Family child care providers' perspectives regarding effective professional development and their role in the child care system: A qualitative study. *Early Childhood Education Journal*, 38(6), 399-409.
- Levenson, E., & Gal, H. (2013). Insights from a teacher professional development course: Rona's changing perspectives regarding mathematically-talented students. *International Journal of Science and Mathematics Education*, 11(5), 1087-1114.
- McMurtry, A., Wilson, K., Clarkin, C., Walji, R., Kilian, B. C., Kilian, C. C., ... &

- Busse, J. W. (2015). The development of vaccination perspectives among chiropractic, naturopathic and medical students: a case study of professional enculturation. *Advances in Health Sciences Education*, 20(5), 1291-1302.
- Roan, A., & Whitehouse, G. 2007. Women, Information Technology and Waves of Optimism: Australian evidence on mixed-skill jobs. *Work and Employment*, 22(1), 21-23.
- Roseler, K., & Dentzau, M. W. (2013). Teacher professional development: A different perspective. *Cultural Studies of Science Education*, 8(3), 619-622.
- Serafini, M. (2018). The professional development of VET teachers in Italy: participation, needs and barriers. Statistical quantifications and benchmarking in an international perspective. *Empirical Research in Vocational Education and Training*, 10(1), 3.
- Stahnke, R., Schueler, S., & Roesken-Winter, B. (2016). Teachers' perception, interpretation, and decision-making: a systematic review of empirical mathematics education research. *ZDM*, 48(1-2), 1-27.
- Tran, T. T. (2013). Limitation on the development of skills in higher education in Vietnam. *Higher Education*, 65(5), 631-644.
- Zhu, G., Waxman, H., Rivera, H., & Burlbaw, L. M. (2018). The micropolitics of student teachers' professional vulnerability during teaching practicums: A Chinese perspective. *The Asia-Pacific Education Researcher*, 27(2), 155-165.
- Zitter, I., De Bruijn, E., Simons, P. R. J., & Ten Cate, T. J. (2011). Adding a design perspective to study learning environments in higher professional education. *Higher Education*, 61(4), 371-386.