Original Article

Effects of practical experience in motor learning and posture on self-efficacy of pre-service teachers

EYAL WEISSBLUETH[1], TALI RONEN[2]
[1,2] Department of Physical Education, Ohalo Academic College, ISRAEL

Abstract:
    Self-efficacy (SE) is an important component in acquiring new skills. Learning and training to become a teacher in general and a physical educator in particular requires that the pre-service student teacher possess SE to carry out their tasks especially after graduating from the appropriate educational program of their choice. The current research aim was to examine the role of practical experience in two complementary courses namely Posture and Motor Learning. The research population comprised of 30 second year students of a four years training course to become physical educators (PE) in the K-12 educational system. Their task was to accompany an adult through 5 sessions within 6 months with the purpose of teaching them to adopt a correct postural position throughout their work. Students were asked to write open ended reflections once a month for five months. Reflections were analyzed qualitatively. The main findings of this study showed that using practical experience helped students increase their SE and allowed them to be more confident of their professional mission. Practical experience challenges learners with active teaching and learning, making pre-service teachers active participants who feel more professionally developed.
Key words: practical experience, self-efficacy, teachers, posture, motor learning.

Introduction

    It has long been established that experience is an important source for learning (Dewey, 1938; Andresen, Boud, & Cohen, 1995; Kolb, 2014) and that it plays a significant role in teachers' work and preparation (Ronfeldt & Reininger, 2012; Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Benedict, Holdheide, Brownell, & Foley, 2016). An important advantage of practical experience in the training stage of teachers is that it promotes students' motivation and development (Kolb, 2014; Hicks, 2017; McLachlan, Rawlings-Sanaei, Mason, Haski-Levanthal, & Nabeel, 2017) which in turn contribute to their SE.

    SE beliefs are an important factor in human motivation and behavior, and in influencing emotion and action. SE theory holds that performance and motivation are determined, in part, by how effective people believe they can be (Bandura, 1982). Later, Bandura (1995) explained that it relates to the person's explanation necessary to succeed the upcoming situations. The most important component of SE is a person's self-belief in their capabilities (Snyder & Lopez, 2001), it is a task-specific version of self-esteem (Lunenburg, 2011), and its basic principle is that individuals are more likely to engage in activities for which they have a higher level and less likely to engage in those for which they have lower ones (van der Bijl & Shortridge-Baggett, 2001). It influences people's learning abilities, their motivation, and their performance, as people will often attempt to learn and perform only those tasks in which they believe they will be successful (Lunenburg, 2011).

    SE among pre and in service teachers has been the focus of several studies in recent years. Some found positive practices that increased preservice teachers SE (Flores, 2015a, 2015b; Nissim & Weissblueth, 2017) while other found positively thought practices such as lesson planning practices not to increase SE (Lee & Lee, 2014). Most studies indicated that teachers with high-efficacy are better at teaching (Bautista & Boone, 2015).

    According to Schunk (2001), teachers with high SE may develop challenging activities to help students with learning difficulties to succeed and persevere. These activities serve as motivational effects that promote students' learning and strengthen teacher competence.

    Ashton and Webb (1986) found that teachers with higher SE were more likely to have a positive atmosphere in the classroom (e.g. lower anxiety among students and less teacher criticism). They tended to support students' ideas and meet all students' needs.

    Learning strategies are generally perceived as learning aids, but they may also affect SE and motivation (Corno & Mandinach, 1983). The belief that a strategy learned improves learning can instill a sense of control over performance outcomes, thus increasing SE and making the learner implement the strategy diligently (Corno, 1989; Schunk, 1989). If the use of strategy improves the performance of the task, the SE of the student is strengthened and they will continue to implement the strategy.

Corresponding Author: EYAL WEISSBLUETH, E-mail: eyalw@ohalo.ac.il

----

Schunk (1989) discusses how SE may work during classroom learning. At the beginning of an activity, students differ in their beliefs about their ability to acquire knowledge, to exercise skills, to control the material, and so on. The initial SE changes as a result of their abilities, attitudes and previous experience. Personal factors such as goal setting and information processing, along with situational factors (eg. rewards and feedback from the teacher) affect students as they work. The students draw their own conclusions from these factors about the nature of their learning and they use them to assess their own ability to learn further. Motivation is increased when students notice that they are progressing in learning. As they work on tasks and become more skilled, they acquire a sense of SE to perform well.

Most of these studies are based on Gist & Mitchell's theory (1992). Their model consists of four distinct factors that contribute to the increase and empowerment of students' SE. These factors include the following aspects: physiological arousal (PA), verbal persuasion (VP), vicarious experience (VE), and enactive mastery (EM).

While education and teaching in general are processes that are complex, PE is particularly unique since in most cases it requires environments such as a gym, a yard and even a stadium while teaching most other subjects stay in the boundaries of their related classrooms.

It is common to see students who prepare themselves to become professionals in law, medicine and health, involved in specifically designed experiences that are practical and related to their profession. That is not the case with PE pre-service students. They are knowledgeable in the health aspect of their student's work but are rarely able to use this particular knowledge for the benefits of their students while they are in practicum or during their teaching experiences. Therefore, we wanted to test the notion that practical professional experience for which relevant content matter derived from academic courses serves as a foundation and helps increase pre-service teacher's SE. The current investigation was based on the emotional aspects of pre-service teachers during training with real motor learning and posture field experience. Thus the study's research question was "How is the SE of pre-service PE teachers affected by teaching using real field application? We speculated that students' SE will increase after they experienced field application with subjects. We expected them to experience difficulties and a range of emotions in fulfilling the tasks assigned to them, and ultimately succeed. We surmised that this would generate an increase in their SE and stimulate an interest in proper posture.

Material & methods

A qualitative research methodology was used based on reflective narrative reports written by 30 pre-service teachers who were enrolled in the PE department and trained themselves to become physical educators. As part of their curriculum, they participated in two courses: "Motor learning and control" and "Proper posture", each worth 4 semester-hours of credit. The 4 semester-hours courses, were aimed at enhancing the professional growth processes of PE pre-service teachers. The courses introduced various practical principles to accompany the motor skills and postural learning needed in the educational arena together with a new practical work module that required them to accompany an adult through 5 sessions within 6 months with the purpose of allowing their learners to learn and adopt a correct postural position throughout their work.

Participants

30 pre-service teachers in their second of a four-year training period to become physical educators in Israel's educational system. Table 1 presents the research population's characteristics.

Table 1. Research population general characteristics (Means and Standard Deviations)

Characteristics	N	Mean age in years (SD)
Males	18	26.5 (4.7)
Females	12	26 (5.48)

Instruments

The pre-service teachers were asked to write reflections at five different points during the course, one month apart as follows: 1st - A month after courses began. They were asked to find someone that they can accompany throughout the year. They were required to take a photo of their learner (see Figure 1); 2nd – After they instructed their learner how to sit while working on the computer; 3rd – Intermediate instruction; 4th – End of process. The last meeting with the learner; 5th - Retention reflection (after a period of non-instruction of learner). Taking a photo and requesting feedback. The semester interim was between the 2nd and 3rd reflections. The first reflection was based on answers for given questions while reflections 2-5 were written freely by the students.

Procedure

The pre-service teachers received information concerning their practical assignment within their two courses' work. They were instructed to choose an individual, receive their written consent to take part in the study and to accompany them at least once a month and not more than once a week for a period of six months. During that period of time, the pre-service teachers were required to apply their knowledge gained in "Motor

628 --

JPES ®   www.efsupit.ro

----

learning" and "Posture" courses to improve their learner's habitual postural behavior at work. To intensify their learning experience, they were asked to write five reflections throughout their experience (see Figure 2).

Fig. 1. Photos of individual learners. a) Sitting straight with no back support. b) Twisted and unbalanced back posture. c) Bent over while no back support. d) Leaning backward with a non-straight back.
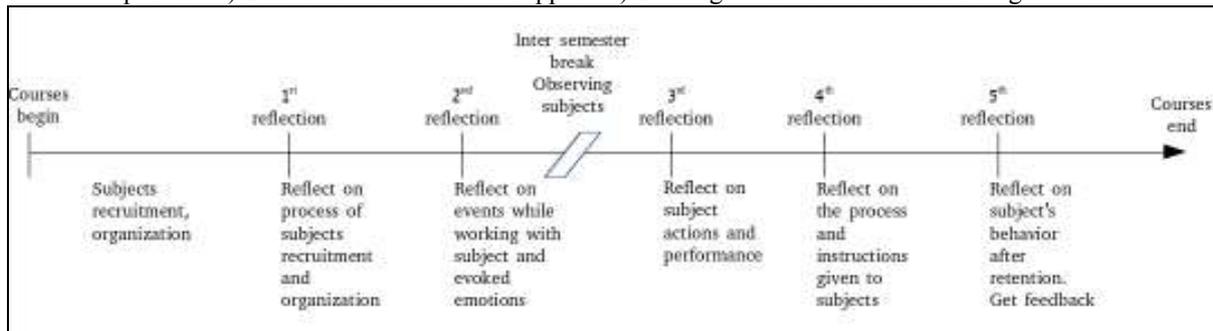

Fig. 2 Study process time-line.

Statistical analysis

Qualitative narrative analysis was used in three phases (Miles, Huberman, & Saldaña, 2013). The first phase included sorting and analysis. In this phase coding was used to create concise descriptor labels. The second phase included code sorting and analysis to promote categorization and creation of themes. The third phase included the interpretation of the results while comparing it to the research hypotheses and model of SE increase (Gist & Mitchell, 1992).

Results

Students submitted five reflections throughout the course. Each time at least 66% of the students submitted their reflections (see Table 2).

Table 2. Numbers of reflections submitted in each of the five assignments

Reflection number	1	2	3	4	5	Total
Number of respondents (out of 30)	30	25	23	22	20	120/150

In the first reflection students referred 19 times to PA, eight were positive and 11 were negative. In the second reflection students referred 34 times to PA (25 positive and 9 negative) and one positive reference in the EM category. While reflecting in the third time students referred positively to PA 11 times, to VP once and to EM thrice. In the fourth reflection, students referred positively 16 times to PA, 14 times positively to VP, eight times positively to VE and 11 times positively to EM. In the final reflection students referred positively four times to PA, 4 times positively to VP and thrice positively to EM. Table 3 present number of positive and negative of references and their examples by reflection order and SE category.

Table 3. Numbers of positive and negative references and examples in students' reflections by SE category and number of chronological reflection.

Ref #	SE category	Number of references	Examples of references
1	PA	(+) 8	"I felt comfortable"; "...to my great happiness they agreed..."; "...my feeling changed into confidence..."; "I felt satisfied that I succeeded..."
		(-) 11	"I felt afraid and shy"; "frustrated and unpleasant"; "Invading privacy"; "Difficult"; "feeling of voyeur"
	No VP, No VE, No EM references.		
2	PA	(+) 25	"I felt I will succeed"; "I was happy and satisfied"; "I felt good after";

-- 629

			"I felt more comfortable over time";
			"… confident...";
			"… content...";
			"… feeling positive and effective...";
			"… a sense of a mission...";
			"… feeling strength...";
			"… with good energies...";
			"… significant experience...".
		(-) 9	"I felt ashamed";
			"I was anxious and afraid";
			"I was shy and nervous";
			"I was confused".
	EM	(+) 1	"There is no doubt that my subject's sitting improved after the 1st session."
	No VP, No VE references.		
3	PA	(+) 11	"...the process was interesting and enjoyable...";
			"...especially when they feel better...";
			"My thoughts and feelings were very positive and energy full...";
			"… I was confident and felt good...";
			"I felt useful...happy to hear my subject applied what I taught her… felt huge satisfaction";
			"...felt I am capable of supporting...";
			"...feeling of a mission...";
			"...feeling proud...".
	VP	(+) 1	"...my subject spoke highly of my help...".
	EM	(+) 3	"… a feeling of self satisfaction since I was able to bring about significant changes in him ...";
			"I told her that she improved a lot since the 1st session… I felt I succeed...";
			"I was successful because it is not just my subject but she corrects others..."
	No VE references.		
4	PA	(+) 16	"...felt I am capable...";
			"I was surprised...";
			'...I felt content and proud...";
			"I was excited...";
			"I felt I am a teacher for the first time.";
			"...felt confident...";
			"...I felt comfortable...";
			"… felt I was a leader… empowered and a desire to teach more...";
			"...a feel of trill...";
			"...felt exhilarated...and pride...".
	VP	(+) 14	"...she thanked me for the amazing process...that I helped her...";
			"...said she was happy to go through the process with me...";
			"...said that the process was very effective...";
			"...thanked me that I chose her...";
			"...said that the process was very good. …I am sure their words influenced me for the good and increase my self confidence.";
			"...my subject said only and many good words...";
			"I was told that it felt good that I cared and helped…"
	VE	(+) 8	"I got help from my wife and I improved...";
			"I was also assisted by some of my friends..." and "...peers..." and "…classmates on how to work with my subject.
			"… consulting with them really helped.";
			"When I was wondering what to do, I was helped by others more knowledgeable… and also on the Internet.";
	EM	(+) 11	"…her sitting posture improved and it was great to see that.";
			"...my result was excellent...";
			"...the routine flow was good and the subject improved";
			"The result of the process was beyond good, one can say excellent… it immediately gave me strength.";
			"The patient underwent a great and good process... it affected me positively and encouragement to become a very successful teacher.";
			"My subject claimed that the process was good and enjoyable, it made me want to invest more."
5	PA	(+) 4	"I was surprised to see how my subject advanced...";
			"I was excited...";
			"...I felt very satisfied...";
			"I felt I mastered the professional knowledge..."
	VP	(+) 4	"My subject said: I value your work. Because of you I am better now";
			"I was told that my attitude was very professional, caring… together we made it!";
			I "showed vast knowledge and professionalism".
	EM	(+) 3	"At the end of the process my subject sat correctly and her posture really improved… it was very interesting and teaching...";
			"My subject felt that the process was very successful and interesting and together we made the final goal… it gave me a lot of strength and belief in my abilities";
			"The process with my subject gave me lots of satisfaction to see her improving posture".
	No VE references.		

Positive reflections throughout the process fitted mainly to the PA category of SE while other categories were referenced more often in the 3rd to 5th reflections (see Figure 3a). However, negative reflections were found only during the first and second reflections and referred to the PA and VP categories (see Figure 3b).
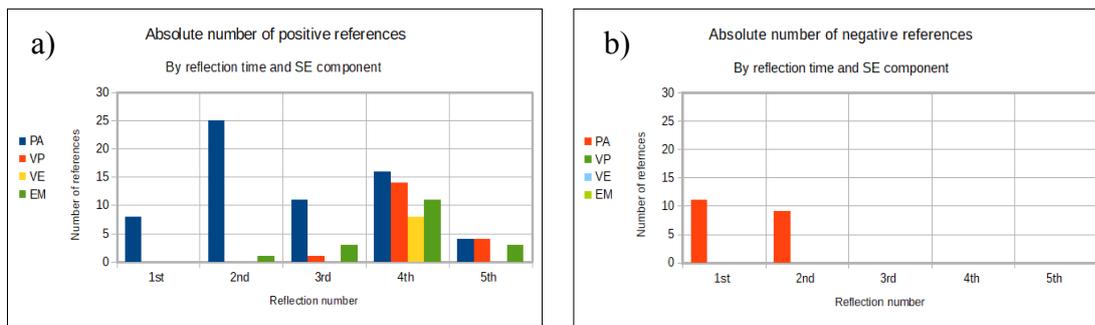
Fig. 3. The absolute number of a) positive and b) negative references made by students by reflection number and SE components. PA=Physiological arousal, VP=Verbal persuasion, VE=Vicarious experience, EM=Enactive mastery.

All individual learners completing all sessions reported improvement and success in applying correct posture. This can be seen in Figure 4.
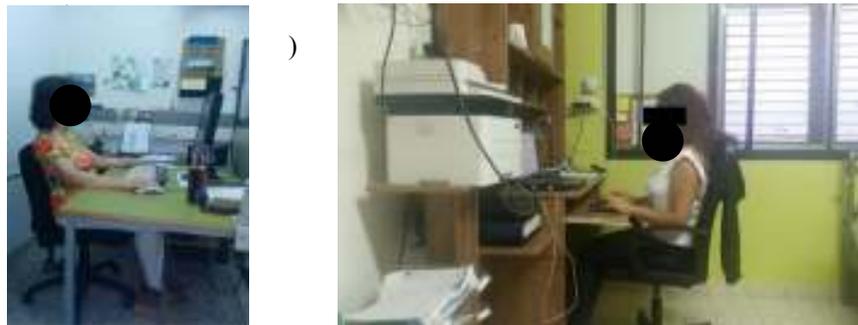

Fig. 4. Photos of individual trainees after training. a) Sitting straight with full back support. Feet raised and flat on the floor. b) Back straight and fully supported.

Discussion

The current study investigated the effect of teaching a course in correct posture using real field application on preservice PE teachers on their SE. Several phenomena are interesting to note. First, is how important practical experience was in the process of preparing a PE teacher. The pre-service teachers testified in their reflections how important their practical experience was to them. That is in agreement with McLachlan et al. (2017) who found that practical experience in teachers' training is important, since it helps to raise the motivation to learn, to investigate, and to gain knowledge. It took some time of doing their practical experience before the pre-service teachers started to experience some progress in their learning which in turn increased their motivation for learning. They followed given tasks and practiced skills that stemmed from their profession and were relevant to them. That in turn helped them become more skilled. Their goal was to use practical experience skills with a belief in succeeding and achieving them. The pre-service teachers' expectations of the results affected their motivation to learn: they listened to instructions, memorized information that needed to be remembered and invested effort and perseverance. The combination of being students and practically active as a teacher, influenced, and strengthened the sense of faith in their personal ability. During their practical experience pre-service teachers received feedback from their lecturer and their learner, who contributed to their advancement toward the goal which at the same time increased their belief in their personal ability. Therefore, practical experience is a significant component in the process of building pre-service teachers' SE, which is reflected through the teacher-patient relationships and is strengthened in light of their performance achievements. Second, PA which is a basic SE indication (Bandura, 1982; Gist & Mitchell, 1992) existed in all reflections while other SE indications were more evident only later in the instructing process. This is understandable since for other SE components to "kick in" the pre-service teacher had to go through prime feelings and emotions first. This required the pre-service teacher to cope with these feelings and emotions first. Only then, when time and mental resources were freed, they could turn to other SE components to have their effect. Third, negative references in the reflections were evident only at the beginning of the instruction process. This may be explained by the instructing process itself. At first, pre-service teachers did not trust themselves to the extent that they were personally capable of nor did they trust whether their knowledge was sufficient to handle and instruct others. As the guiding process continued, they began to feel at ease and got used to the facilitation process thus, realizing that they could instruct, guide and coach. They also realized that it is the knowledge they had acquired that enabled them to do so. With this feeling, negative reflections also disappeared. As time progressed, they experienced successes which may have led to the complete disappearance of the negative reports and therefore also an improvement in SE. We can safely assume that this indicated positive internal changes took place in the pre-service teachers.

Conclusions - We conclude that practical experience provides active teaching and learning challenges with PE pre-service teachers learners making them active participants in their training process who feel more professionally developed.

References

Andresen, L., Boud, D., & Cohen, R. (1995). Experience-Based Learning. In Foley, G. (Ed.), *Understanding Adult Education and Training* (pp. 207–219). Sydney: Allen & Unwin.

Ashton P.T., & Webb R.B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement.* Longman Publishing Group.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122–147. https://doi.org/10.1037/0003-066X.37.2.122

Bandura, A. (1995). *Self-Efficacy in Changing Societies*. Cambridge University Press. Retrieved from https://doi.org/10.1017/CBO9780511527692

Bautista, N. U., & Boone, W. J. (2015). Exploring the Impact of TeachME™ Lab Virtual Classroom Teaching Simulation on Early Childhood Education Majors' Self-Efficacy Beliefs. *Journal of Science Teacher Education*, *26*(3), 237–262. https://doi.org/10.1007/s10972-014-9418-8

Benedict, A., Holdheide, L., Brownell, M., & Foley, A. M. (2016). *Learning to Teach: Practice-Based Preparation in Teacher Education. Special Issues Brief*. Center on Great Teachers and Leaders. Retrieved from https://eric.ed.gov/?q=Experience++based+learning+in+teacher+preparation&pg=2&id=ED570144

Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher Preparation and Student Achievement. *Educational Evaluation and Policy Analysis*, *31*(4), 416–440. https://doi.org/10.3102/0162373709353129

Corno, L. (1989). Self-Regulated Learning: A Volitional Analysis. In *Self-Regulated Learning and Academic Achievement* (pp. 111–141). Springer, New York, NY. https://doi.org/10.1007/978-1-4612-3618-4_5

Corno, L., & Mandinach, E. B. (1983). The role of cognitive engagement in classroom learning and motivation. *Educational Psychologist*, *18*(2), 88–108. https://doi.org/10.1080/00461528309529266

Dewey, J. (1938). *Experience and education*. Simon & Schuster.

Flores, I. M. (2015a). Developing preservice teachers' self-efficacy through field-based science teaching practice with elementary students, *27*, 19.

Flores, I. M. (2015b). Preservice Teachers as Investigative Science Mentors: Advancing Self-Efficacy through School-Based Professional Development. *Journal of Instructional Pedagogies*, *17*. Retrieved from https://eric.ed.gov/?id=EJ1102881

Gist, M. E., & Mitchell, T. R. (1992). Self-Efficacy: A Theoretical Analysis of Its Determinants and Malleability. *Academy of Management Review*, *17*(2), 183–211. https://doi.org/10.5465/amr.1992.4279530

Hicks, A. (2017). Participation as Pedagogy: Student and Librarian Experiences of an Open Access Publishing Assignment. *Journal of Education for Library and Information Science*, *58*(3), 160–175. https://doi.org/10.12783/issn.2328-2967/58/3/3

Kolb, D. A. (2014). *Experiential Learning: Experience as the Source of Learning and Development*. FT Press.

Lee, Y., & Lee, J. (2014). Enhancing pre-service teachers' self-efficacy beliefs for technology integration through lesson planning practice. *Computers & Education*, *73*, 121–128. https://doi.org/10.1016/j.compedu.2014.01.001

Lunenburg, F. C. (2011). Decision making in organizations. *International Journal of Management, Business and Administration*, *15*(1), 1–9.

McLachlan, K., Rawlings-Sanaei, F., Mason, C., Haski-Levanthal, D., & Nabeel, H. (2017). The Student Experience of PACE at Macquarie University: Understanding Motivations for Learning. *Asia-Pacific Journal of Cooperative Education*, *18*(1), 59–71.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook* (3 edition). Thousand Oaks, Califorinia: SAGE Publications, Inc.

Nissim, Y., & Weissblueth, E. (2017). Virtual Reality (VR) as a Source for Self-Efficacy in Teacher Training. *International Education Studies*, *10*(8), 52–59. https://doi.org/10.5539/ies.v10n8p52

Ronfeldt, M., & Reininger, M. (2012). More or better student teaching? *Teaching and Teacher Education*, *28*(8), 1091–1106. https://doi.org/10.1016/j.tate.2012.06.003

Schunk, D. H. (1989). Self-efficacy and achievement behaviors. *Educational Psychology Review*, *1*(3), 173–208. https://doi.org/10.1007/BF01320134

Schunk, D. H. (2001). *Self-Regulation through Goal Setting. ERIC/CASS Digest*. ERIC Counseling and Student Services Clearinghouse, University of North Carolina at Greensboro, 201 Ferguson Building, P. Retrieved from https://eric.ed.gov/?q=author%3aSchunk+pubyear%3a2001&id=ED462671

Snyder, C. R., & Lopez, S. J. (Eds.). (2001). *Handbook of Positive Psychology*. Oxford EnglandY; New York: Oxford University Press.

van der Bijl, J. J., & Shortridge-Baggett, L. M. (2001). The theory and measurement of the self-efficacy construct. *Scholarly Inquiry for Nursing Practice*, *15*(3), 189–207.

632 ---

JPES ®   www.efsupit.ro