

Effective teaching and motivation: Application of self-determination theory

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Developing quality and effective future teachers is a cornerstone of all teacher-education programs. An area of inquiry that has been identified as influential within the teacher development process is the concept of motivation. Therefore, the purpose of this study was to examine if there were differences between elements of effective teaching based on preservice teachers (PTs) motivation toward teaching. 68 (Male=44; Female=24) undergraduate Physical and Health Education PTs were recruited within this study. PT data were collected on their motivation toward teaching and elements of effective teaching. Results indicated that motivation was associated with elements of effective teaching.

Keywords: Self-Determination Theory; motivation; teacher education.

Introduction

Developing quality and effective future teachers is a cornerstone of all teacher-education programs (AITSL; Australian Institute for Teaching and School Leadership, 2011). As such, teacher-education based research is continuously examining diverse ways in developing and understanding effective teaching and teachers. An area of inquiry that has been identified as influential within the teacher development process is the concept of motivation (Schieb & Karabenick, 2011). Governing bodies within teacher-education have supported the notion that effective teachers should demonstrate positive dispositional behaviors, such as being motivated toward teaching (AITSL, 2011). The issue that arises is that there is not a clear understanding of the connection or differences associated with teacher motivation and elements of effective teaching. Therefore, the overall aim of this study was to examine differences between elements of effective teaching based on preservice teachers (PTs) motivation toward teaching

Motivational framework – Self-Determination Theory

Deci and Ryan (1985) developed the motivational theory known as Self-Determination (SDT) that was used as the framework for this study. SDT posits that an internal feeling or perception of volition motivates individuals over their actions (Deci & Ryan, 1985; 2000). For example, within a school setting a motivated teacher may perceive a higher level of control over what can be taught within their classroom. Individual motivation, also termed self-determination, has been categorized into three main concepts: intrinsic, extrinsic and amotivation (Vallerand, 2001). Intrinsic forms of motivation are engaged in for internal

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reasons, such as enjoyment, pleasure or for the feeling of satisfaction (Ryan & Deci, 2000). Extrinsic motivations are influenced by external factors, such as earning a prize or feeling pressure to complete a task (Ryan & Deci, 2000). Finally, amotivation is viewed as a lack of motivation or desire as illustrated in people who do not engage in behaviour no matter how many external prompts are provided (Ryan & Deci, 2000). Vallerand (2001) indicated that the three forms of motivation could be placed on a continuum with extrinsic motivation placed between intrinsic and amotivation. In addition, the closer a person is toward the intrinsic end of the spectrum the more self-determined (See Table 1).

Table 1. Motivational continuum

Motivational Continuum		
Intrinsic High Self-Determination	Extrinsic	Amotivation Low Self-Determination

Motivation and teacher education

Research has indicated that being more intrinsically motivated or self-determined within a work environment such as teaching is associated with a variety of positive outcomes (Ryan & Deci, 2009). For instance, intrinsically motivated people have been more likely to put forth increased effort, engagement in school activities and learning (Black & Deci, 2000; Shen, McCaughtry, Martin & Fahlman, 2009). Bieg, Backes and Mittag (2011) found that intrinsically motivated teachers provided an instructional setting that positively influenced the motivation of their students. On the other end of the spectrum, people with lower forms of self-determination tend to be less involved, not enjoy activities and are disengaged in learning tasks (Ntoumanis, Pensgaard, Martin & Pipe, 2004; Perlman, 2012a; Perlman, 2012b). As such, much of the research supports the notion that being more intrinsically motivated is aligned with more positive outcomes in the educational setting (Black & Deci, 2000; Rackoczy, Klieme & Pauli, 2008; Perlman & Piletic, 2012; Perlman, 2011).

There has been a wealth of inquiry focused around the concept of motivation and teaching (Soenens, Sierens, Vansteenkiste, Goossens, & Dochy, 2012; Ten Cate, Kusurkar & Williams, 2011; Ryan & Deci, 2009; Deci & Ryan, 2004; Ryan & Brown, 2005). An extensive review of literature found three major themes on motivation and teacher education of (a) determinants of teacher motivation (Niemic, Lynch, Vansteenkiste, Bernstein, Deci & Ryan, 2006; Williams, Saizow, Ross & Deci, 1997), (b) interventions to change teaching practices (Perlman, 2012a; Perlman & Piletic, 2012; Perlman, 2011; Tessier, Sarrazin & Ntoumanis, 2010) and (c) the influence of motivationally-based instructional practices on student outcomes (Filak & Sheldon, 2003; Black & Deci, 2000). A summary of the aforementioned studies indicated that aspects of the school setting, such as the inherent pressures of being a teacher, influence the motivational profile of teachers. Second, it is feasible to change the instructional practices of teachers to provide more motivationally supportive instruction to students (Perlman, 2011). Third, specific instructional behaviours, such as the way lesson content is communicated, can influence the motivation of students (Perlman & Webster, 2011). While teacher education and motivation has received much interest, there are still areas that need inquiry.

To date, limited if any research has examined the connection between teacher motivation toward teaching and the elements of effective teaching. Second, much of the inquiry has been conducted in the K-12 setting without much inquiry on populations

studying to become certified teachers (i.e. PTs). The importance of examining PTs is that this population of participants are at a malleable part of their career and an enhanced understanding of the connection between motivation and quality teaching can have a significant impact on their teaching career. Therefore, the purpose of this study was to examine if there are differences between elements of effective teaching based on preservice teachers (PTs) motivation toward teaching. Specifically, this study examined the following research question:

Does the level of motivation toward teaching (i.e. high and low) illicit difference within elements of effective teaching of preservice teachers?

Methods

Participants and settings

Participants within this setting were 68 (Male=44; Female=24) undergraduate Physical and Health Education PTs from an original pool of 375 enrolled in a seven-week internship. PTs within this setting were fourth year students that completed their entire four-year accredited degree. As part of their degree each student completed a total of 29 subjects and 50 days of in-school professional experience. The internship was a required element of PTs undergraduate degree and was conducted at a secondary school (Years 9 – 12) within New South Wales, Australia. The internship was based on a professional teaching experience whereby each PT was required to design, implement and assess units of work as if they were a hired teacher. It should be noted that each PT had an in-school internship supervisor. The role of the in-school supervisor was to ensure that the PT had adequate support provided feedback and complete all required internship paperwork.

Identification of PTs motivation toward teaching

All 375 participants were asked to complete the Work Tasks Motivation Scale for Teachers (WTMST; Fernet, Senécal, Guay, Marsh & Dowson, 2008). The WTMST is a 30-item scale that requires participants to rate their level of agreement on a 7-point Likert scale (1=does not correspond at all; 7 = corresponds completely). Responses are averaged to provide an overall motivation toward teaching score. Fernet et al. (2008) indicated an adequate level of validity (convergent and discriminant) and reliability (internal consistency Cronbach's alpha between .83 - .96) associated with the WTMST with teachers. Identification of PTs level of self-determined motivation was pre-established whereby a highly motivated PT would have an average score above 6, while a low self-determined PT would score below a 2 on the WTMST. All 375 PTs data was entered into a statistical software package and item scores were averaged. As such, each PT was provided an overall motivation toward teaching score that could range between 1 and 7. Results of data analysis indicated that N=68 PTs meet the pre-established criteria and were categorized into the following groups (High Self-Determined = 36, Male = 22; Female=14; Low Self-Determined = 32, Male = 22; Female=10).

Measuring elements of effective teaching

Upon completion of the internship, the in-school supervisor completed the Professional Teaching Standards Report (PTSR). The PTSR is a 46-item assessment of teaching quality

rated on a 4-point scale. The assessment scale is based on the PTs ability to provide evidence of meeting criteria using the following scale:

- 1 = Limited evidence of capacity
- 2 = Evidence of capacity
- 3 = Consistently demonstrated evidence of capacity
- 4 = Demonstrated capacity beyond expectations.

For instance, PTs were rated on their ability to *demonstrate a variety of strategies to develop rapport with all students*. Subscale scores for each PT was calculated by averaging relevant items within the areas of Professional Knowledge (PK), Professional Practice (PP) and Professional Commitment (PC). PK is the cognitive aspect of teaching, including elements of planning. PP is the delivery of material or the application of pedagogy, while PC are external aspects associated with teaching such as meeting with parents and engaging with the professional community.

To ensure a level of reliability and consistency across PT assessment, each in-school supervisor engaged in a training session. The training session informed participants of the PTSR and descriptors of what each PT needed to demonstrate in order to earn a 1, 2, 3 or 4 within each item. In addition, each supervisor engaged in some sample assessments of previous students teaching and work to ensure a level of reliability across assessors.

Data analysis

To examine the appropriate level of analysis (individual or group), Intra-class Correlation Coefficients (ICCs) were calculated on all dependent variables (i.e. PK, PC and PP). Based on the results of the ICCs (all dependent variables were negative) and recommendations of Kenny and LaVoie (1985) the individual was retained as the appropriate level of analysis. Descriptive statistics (Means and Standard Deviations) and reliability (Cronbach Alpha) were calculated on all dependent variables. To examine the research question associated with differences between motivational groups, three separate one-way ANOVAs were calculated on each dependent variable. Due to the use of multiple ANOVA calculations a Bonferonni adjustment was conducted and provided a revised significance level ($p \leq .016$).

Results

Descriptive statistics are displayed in Table 2. Cronbach α calculations were deemed acceptable (PK=.89; PP=.92; PC=.93) as they exceeded the .80 threshold identified by Nunnally and Bernstein (1994). Results of the ANOVA calculations indicated significant differences for both PK $F(1, 66) = 11.170, p=.001$ and PC $F(1, 66) = 19.602, p = .000$ whereby PTs with higher levels of motivation toward teaching received significantly higher PTSR scores. It should also be noted that there was no significant difference associated with PP $F(1, 66) = 0.050, p=.823$ among PTs.

Table 2. Descriptive statistics and reliabilities of dependent variables

	High Self-Determined		Low Self-Determined	
	M	SD	M	SD
Professional Knowledge	3.06	0.42	2.69	0.49
Professional Practice	2.79	0.59	2.76	0.45
Professional Commitment	3.06	0.42	2.58	0.49

Discussion and conclusion

The primary focus of this research was to examine if there are differences between elements of effective teaching based on preservice teachers (PTs) motivation toward teaching. Results of this study indicated diverse levels of PTs motivation toward teaching do, in fact, elicit different levels of being an effective teacher within the discipline of Physical and Health Education. Specifically, PTs who are highly self-determined were scored significantly higher in terms of professional knowledge (PK) and commitment (PC), while the area of practice (PP) was deemed insignificantly different. The findings from this study indicate that PTs motivation toward teaching can be an important disposition or indicator of effective teaching practices.

It is interesting to see the significantly higher scores on PK and PC of PTs who were more motivated toward teaching. The NSW Institute of Teachers (NSWIT; 2005) indicate that PK is aligned with a teacher who has the understanding of subject specific content and pedagogical principles to meet the diverse needs of their students. In addition, PC is viewed as a PT who demonstrates positive dispositions or behaviours toward being a quality educator (NSWIT, 2005). A plausible reason for the significant difference in terms of PK and PC could be attributed to the enhanced desire (i.e. motivation) to increase PTs their abilities to be a better teacher. For example, a more self-determined PT may be more willing to spend time finding additional resources or working with colleagues to develop a pedagogically and educationally appropriate lesson or unit of study. The aforementioned example is supported by Day (2004) who suggested that passionate and motivated teachers go above and beyond their contractual obligations to provide a better educational experience for their students. Going above and beyond an individual contract can be viewed as an imperative aspect of beginning teachers and an important finding of this study. The dynamic school context requires effective teachers to meet the diverse needs of their students in an ever-changing environment. For instance, within Australia the guiding documents which provide teachers with a scaffold of learning (e.g. Syllabi) will likely change a few times throughout an individual teaching career. As such, teacher education programs may need to focus on the development of teacher dispositions and in the case of this study the concept of motivation.

It is also important to note that there were no significant differences associated with the PP of both groups. PP is aligned with the PTs abilities to deliver instruction (e.g. actual teaching in the school context). The lack of difference could be attributed to (a) the concept of time and (b) the high cognitive emphasis when delivering instruction. When examining the aforementioned concepts of PK and PC, each PT had the opportunity to spend a relatively larger amount of time engaging with colleagues or researching resources in the development of lessons. In addition, each PT could spend time reflecting on different aspects of a planned lesson. In contrast, when a PT was asked to deliver the lesson (i.e. PP) they only had one chance. Each PT was asked to deliver a lesson at a certain time, in a specific setting and may not have had the opportunity to stop the lesson and correct or modify any mistakes made. Furthermore, there is a high level of cognitive aspects that a PT needed to manage during each lesson. For example, a PT can be trying to think about aspects of management (e.g. grouping, transitions, equipment distribution) and instruction (e.g. delivery of content, assessing students) at once. Fry (2007) indicated that the actual delivery of instruction can be one of the most difficult task for a beginning or novice teacher due to the high cognitive demand. Result of this study support the statement of Fry (2007) as it was illustrated that no matter how motivated a PT the delivery of instruction was similar. These findings suggest that PTs motivation toward teaching might be a valuable concept to examine, assess and nurture within a teacher education program. Results of this study

indicated that motivated PTs were more effective in terms of planning (e.g. knowledge) and working with the larger community (e.g. commitment) when compared with low motivated PTs. Although PT motivation toward teaching can be an important construct for the development of effective beginning teachers, this study is not without limitations and need for further inquiry. First, this study only examined a small section of PTs (Physical and Health Education students). The discipline of Physical and Health Education can be very different when compared with traditionally classroom subject areas such as Science. For instance when teaching in a physical activity setting the managerial aspects (e.g. grouping of students and setting boundaries) can be different when in a classroom setting whereby the boundaries are pre-determined by the structure of the building and the set up of the desk and chairs. Second, the PTs taught in a variety of secondary schools. The school context may have had some influence on the abilities of each PT to delivery lessons and units. As an example, one school may have the facilitates and resources to teach a unit of Outdoor Education, while another school may have limited budgetary funds and can only implement activities with limited to no equipment. Future studies may be needed to address the aforementioned limitations to better understand how teacher motivation influences their practice.

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