Student-teachers' commitment to teaching and intentions to enter the teaching profession in Tanzania

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Commitment to teaching is a recurring topic in both research and policy discussions on teaching and the teaching profession. We investigated factors explaining differences in student-teachers' commitment to the teaching profession and to student learning, and their intentions to enter the teaching profession. Student-teachers (n = 3,246) from one University College in Tanzania completed a Commitment-to-Teaching questionnaire. Bandura's Social-Cognitive Theory was used to explain the findings. Differences in student-teachers' commitment were explained by personal characteristics (i.e., student-teachers' sense of self-efficacy), environmental factors (i.e., perceived influence of significant others and school conditions), and learning experiences (i.e., student-teachers' attitudes towards the teaching profession, their teaching subjects, and satisfaction with the teacher education programme). Implications for practice and for research on student-teachers' commitment to teaching are discussed.

Keywords: commitment to teaching; intentions to enter teaching; student-teachers

Introduction

Internationally, both primary and secondary schools experience problems with recruiting and retaining a sufficient number of teachers (Cooper & Alvarado, 2006; DeAngelis & Presley, 2011; Organisation for Economic Co-operation and Development [OECD], 2005, 2014; Mulkeen, Chapman, DeJaeghere & Leu, 2007; Mulkeen & Crowe-Taft, 2010). New estimates from the UNESCO Institute of Statistics ([UIS], 2016) confirm that there is a serious and urgent need for millions of additional teachers in order to meet global education goals. If UNESCO Sustainable Development Goal 4 (SDG 4) of universal primary and secondary education is to be achieved by 2030, a total of 68.8 million teachers, including 24.4 million primary teachers and 44.4 million secondary teachers, must be recruited. In most cases, teacher retention is affected by high teacher attrition within the first five years of entry into the profession, reported in both developed and developing countries (DeAngelis & Presley, 2011; Ingersoll & Smith, 2003; Mulkeen et al., 2007; OECD, 2014). Moreover, research shows that many graduates do not enter the teaching profession after graduation, due to student-teachers' low commitment with teaching and the teaching profession (Rots & Aelterman, 2009; Rots, Aelterman, Vlerick & Vermeulen, 2007). Arguably, this lack of graduate uptake affects recruitment processes and targets. Furthermore, research has shown that in-service teachers' retention and attrition (Billingsley, 2004; Day, Elliot & Kington, 2005; Klassen & Chiu, 2011; Tait, 2008) is also connected to teachers' commitment to teaching, where teachers with low levels of commitment are most likely to leave the profession. One way to reduce teacher attrition is to enhance commitment to teaching among teachers and student-teachers. The current paper makes a contribution to understanding the factors related to student-teachers' commitment to teaching. Understanding these factors will provide insight for those working in teacher education about what to consider in order to enhance commitment to teaching among student-teachers.

Like many Sub-Saharan African countries, Tanzania also experiences a serious teacher shortage. Teacher shortage in Tanzania increased following the government's implementation of the Primary and Secondary Education Development Programmes (PEDP I, II and SEDP I, II) from 2004 to 2014. The Tanzanian government increased its focus on the training and recruitment of teachers by giving study-loan priority to students enrolling in teacher education and offering them direct employment upon graduation. As a result, the most reliable formal sector of employment for graduates in Tanzania, is teaching. Recruitment practices such as these, which offer employment incentives, have led to increasing numbers of students entering teacher education programmes. However, research from Tanzania also shows that many students enter teacher education with a strong extrinsic motivation, and many of them have no intention of entering the teaching profession, or intend to leave soon after employment (Towse, Kent, Osaki & Kirua, 2002; Tungaraza, 2012). The current study aimed to investigate, in the Tanzanian context, factors that explain differences in student-teachers' commitment to teaching and intention to enter the profession.

Theoretical Framework

Generally, commitment refers to a high level of attachment to something in a social endeavour and can manifest itself in the extra investment of personal resources such as time, money, or effort (Meyer, Allen & Smith, 1993; Tyree, 1996). Commitment is a multidimensional construct and different researchers identify various dimensions, which basically overlap. For instance, Meyer et al. (1993) distinguished three dimensions of commitment, namely: (a) affective commitment, which entails positive emotions towards a profession and strong desire to remain in that profession; (b) continuance commitment, which refers to being aware of the costs of leaving a profession; and (c) normative commitment, which refers to the feeling of obligation to remain in a profession. At the same time, other scholars explain the dimensions of commitment in a slightly different way. For example, Tyree (1996) identified three dimensions of commitment as: 1) strong identification with (i.e., a strong intrinsic attachment); 2) extra involvement with (i.e., expenditure of non-required resources); and 3) strong loyalty to (i.e., a willingness to forego other opportunities and remain) a referent. While the dimensions identified by Meyer et al. (1993) are based on motives and reasons for becoming committed to something, the dimensions identified by Tyree (1996) are based on describing characteristics or behaviours that are likely to be shown by a committed person.

Commitment requires a referent, that is, there is a commitment to something external to the individual, for example, an organisation or a particular activity. For example, in the teaching profession, commitment is typically associated with specific objects of commitment, such as the profession of teaching itself, the school as an organisation, the students and/or subjects taught (Dannetta, 2002; Tyree, 1996). In most cases, measurements focus on a single object of commitment. The common measure of teacher commitment focuses on teacher attrition. Teachers are asked to respond to the question about whether they would choose the teaching profession if they had to take a decision again, and how many years they plan to stay in the profession (e.g., Bruinsma & Jansen, 2010). Measuring commitment in this way views teacher commitment as commitment to the profession. In this study, we conceptualise commitment to teaching in terms of student-teachers' psychological attachment to the profession of teaching. This involves student-teachers' positive emotions towards teaching as a profession, their inclination to go into the profession, remain in the profession, and to devote their energy and time to the work of teaching and learning. In our study, we included items capturing commitment to the profession, school subject and student learning.

Researchers have established a range of antecedents that influence commitment to teaching, including personal characteristics (e.g., age, gender, self-efficacy and background), structural conditions, job satisfaction, learning experiences both prior to, and during teacher education, and professional experience (Billingsley 2004; Day et al. 2005; Fresko, Kfir & Nasser, 1997; Rots, Aelterman, Devos & Vlerick, 2010).

We used Bandura's (1986) Social Cognitive Theory (SCT) as a framework for the factors that are identified in the literature on student-teachers' commitment. The theory posits that an individual's psychological functioning is a result of a dynamic and reciprocal interaction between personal, behavioural, and environmental influences. According to SCT, human beings are viewed as proactive, self-organising, self-reflecting and self-regulating, rather than reactive organisms shaped and directed by environmental forces. Thus, the emphasis is on the cognition of human beings that plays a critical role in their capability to construct reality, self-regulate, encode information, and perform behaviours.

Factors related to student-teachers' commitment

In this study, commitment to teaching is conceptualised in terms of student-teachers' psychological attachment to the profession of teaching (cf., Dannetta, 2002; Tyree, 1996). This includes factors such as student-teachers' positive emotions towards teaching as a profession, their inclination to enter and remain in teaching, and their willingness to give their energy and time to the processes of teaching and learning. Based on the literature, we identified a range of factors including student-teacher personal characteristics, previous behaviour (including learning experiences) and environmental determinants that are related to commitment to teaching. We explain each of these factors below.

Personal characteristics

The core of SCT is self-efficacy beliefs. This refers to people's judgments of their capabilities to organise and execute courses of action required to attain designated types of performances (Bandura, 1986). Self-efficacy belief is a significant characteristic of a person that determines an individual's ability to execute a particular behaviour. In teaching, a sense of self-efficacy applies to situations where a teacher judges his or her capability to bring about desired learning outcomes among students (Tschannen-Moran & Woolfolk Hoy, 2001). Research literature generally shows a positive relationship between student-teachers' self-efficacy and their commitment to teaching (Chesnut & Cullen, 2014; Klassen & Chiu, 2011; Klassen, Wilson, Siu, Hannok, Wong,

Wongsri, Sonthisap, Pibulchol, Buranachaitavee & Jansem, 2013; Rots et al., 2007), with self-efficacy as a significant predictor of whether student teachers will enter the profession upon graduation (Rots, Aelterman & Devos, 2014).

In addition, gender and age are important personal factors that explain differences in student-teachers' commitment to teaching. In a review study, Guarino, Santibañez and Daley (2006) found higher positive attitudes to the teaching profession and intention to enter the teaching profession among female teachers than male teachers. This gender difference is also confirmed in studies not included in Guarino et al.'s review. For example, Maliki (2013) found that female student-teachers in Nigeria showed a more positive attitude towards the teaching profession than did their male counterparts, and Rots et al. (2014) found that Belgian female student-teachers showed greater intention than did males towards entering the teaching profession following graduation.

With respect to age, the literature generally indicates that young people (18–22 years) are less committed to the teaching profession. Guarino et al. (2006) found higher attrition among younger compared with older teachers. Young people tend not to be seriously committed to staying in the profession, and they approach teaching tentatively, talking of 'exploring teaching' as a career option (Johnson & Kardos, 2005). This finding is in line with Super's (1990) exploration stage in the psychological life and career development stages, explained in his Developmental Self-concept Theory. In this stage, during early adulthood, individuals try out different choices, look for desired opportunities and tend to have low commitment.

Likewise, Watt, Richardson and Tysvaer (2007) found that individuals who considered changing from teaching ("highly-engaged switchers") comprised mainly the youngest student-teachers in their sample.

Environmental determinants

Individual expectations and perceptions of the future work environment are identified as important aspects determining motivation and commitment to enter the teaching profession (Chesnut & Cullen, 2014). Teaching work-related factors, such as school context, workload, student behaviour, colleagues, and school leadership, are important in enhancing or diminishing student-teachers' commitment to teaching. When teachers face a school context having a culture which is not supportive to teachers' needs as human beings, and having unsupportive school leaders and colleagues, teachers may find it demotivating to continue working at the school, and for the profession itself. In addition, teaching-related activities such as dealing with students' deviant behaviours and the

teaching workload are some of the factors that increase burnout in teachers and diminish their commitment (Chesnut & Cullen, 2014; Huang & Waxman, 2009; Klassen & Chiu, 2011).

Other environmental factors identified include features of the teacher education program such as subject specialisation and social influence that is, influence from parents, friends, and teachers. Regarding subject specialisation, Rots et al. (2010) found that student-teachers who qualified to teach 'expression' subjects (such as physical education or arts) were almost 20% less likely to enter teaching compared to student-teachers from other subject specialisations. Kılınç, Watt and Richardson (2012) found that science-related student-teachers scored more highly on teaching as a 'fall-back' career, and lower on other motivation factors for choosing teaching. Concerning social influence, Schutz, Crowder and White (2001) and Thomson, Turner and Nietfeld (2012) found that significant others positively influenced student-teachers' decision to become teachers i.e., the more positive significant others the more committed student teachers were. Wolhuter, Van der Walt, Potgieter, Meyer and Mamiala (2012) found (extended) family to be the most important source of inspiration for choosing teaching among student-teachers in South Africa.

Learning experiences

Student-teachers' commitment to the teaching profession may be as a result of learning from their school and social environment. Student-teachers enter the field of teaching with pre-existing beliefs and attitudes towards the profession, based on these prior experiences. In Australia, Richardson and Watt (2006) found that student-teachers perceived teaching as a highly emotionally demanding career with a heavy workload, a career with relatively low social status and a low salary. In the same study, student-teachers also reported having experienced strong social dissuasion from choosing a career in teaching. Student-teachers' negative perceptions of the teaching profession have also been highlighted in other studies (see for example, Maliki, 2013; Tungaraza, 2012).

The role of the teacher education programme in enhancing student-teachers' commitment is paramount. Rots, Kelchtermans and Aelterman (2012) found student-teachers' motivation and intention to enter teaching increased as they continued in teacher education, with the main influencing factors being learning about pedagogical theories, practical teaching experiences, and mentor support. The influence of mentor support on student-teachers' commitment to the profession has also been shown in other studies (Christophersen, Elstad, Solhaug & Turmo, 2016; Durksen & Klassen, 2012; Rots & Aelterman, 2009; Rots et al., 2007, 2010, 2014). Finally, the extent to which almost graduated student-teachers

feel prepared for their work as teachers was also found to be a significant predictor of their decision to enter the profession upon graduation (Rots et al., 2014).

The current study focuses on student-teachers, and brings together a number of factors identified in the literature into one framework, using the lens of Social Cognitive Theory. The following research question guided our study:

> "Which factors explain differences in student-teachers' commitment to teaching and their intention to enter the profession?"

Derived from the literature presented above, we formulated the following hypotheses:

With respect to student-teachers' personal characteristics:

- H_1 Student-teachers' gender is related to their commitment to teaching and intention to enter the profession, with females showing relatively high scores.
- H_2 Student-teachers' age is related to their commitment to teaching and intention to enter the profession, with the older student teachers are, the more committed they report to be.
- H_3 Student-teachers' self-efficacy is positively related to their commitment to teaching and intention to enter the profession.

With respect to environmental determinants:

- H_4 Student-teachers' support of significant others is positively related to their commitment to teaching and intention to enter the profession.
- H_5 School conditions are related to student-teachers' commitment to teaching and intention to enter the profession, with the more positive school conditions are perceived, the more committed student-teachers are.

With respect to learning experiences:

- H_6 Student-teachers' programme satisfaction is positively related to their commitment to teaching and intention to enter the profession.
- H_7 Student-teachers' attitudes towards teaching and the teaching profession are positively related to their commitment to teaching and intention to enter the profession.

Method

Procedure and Participants

The explorative explanatory study was conducted in the academic years of 2013/2014 and 2014/2015 at Dar Es Salaam University College of Education (DUCE), which is one of the two largest university colleges in Tanzania exclusively offering a teacher education degree. Following a three-year Teacher Education Bachelor programme, graduates qualify to teach in secondary schools or in teacher education colleges. Research clearance [including ethics procedures: Reference No: AB3/12(B)] was obtained from the University of Dar Es Salaam and the Dar Es Salaam University College of Education

prior to commencing data collection. The first author made arrangements with four lecturers working in the programme to use approximately 50 minutes of class time for questionnaire administration. After explaining the study objectives and confidentiality issues, and assuring the student-teachers that their participation would not influence their grades or studies, the researcher invited student-teachers to participate in the study. All registered student-teachers from all years of study were invited to participate, ($n = 4,952$ students); where of these 3,246 student-teachers (33% females, 67% males) agreed to participate. Participants included student-teachers commencing their first, second, and third year of study (September 2015), as well as those completing their third year (May 2014, two months before graduation). In Tanzania, two main pathways comprise undergraduate teacher education: 1) Bachelor of Education (B.Ed - Science or Arts) that includes an education major; and 2) Bachelor of Arts with Education (B.A. (Ed)) and Bachelor of Science with Education (B.Sc. Ed) that does not include an education major. Both of these pathways lead to a qualification for secondary teaching. Those students who choose an Education major pathway (usually the minority of students) also qualify to teach certificate and diploma level in teacher education colleges. Participant information is provided in Table 1.

Instruments

Data was collected using a paper-and-pencil questionnaire. The scales that formed this questionnaire were constructed by the authors based on the literature, except for the Teacher Self-efficacy Scale (TSES; we explain this below). We piloted the questionnaire to a different group of undergraduate student-teachers ($n = 120$). Descriptive statistics and reliability analyses of the pilot data resulted in deleting items that considerably lowered the reliability (lower than Cronbach's $\alpha = 0.70$; Nunnally, 1978); reformulating items that seems to cause interpretation problems; and adding new items that match the original scale labels based on face validity. Student-teachers' commitment to teaching was measured by asking about their feelings of commitment to the teaching profession, teaching subject, and student learning, and their intentions to enter the profession. Part of this data was used in another study on a different topic: gender and gender roles differences in student-teachers' commitment to teaching (Moses, Admiraal & Berry, 2016).

Table 1 Participant information (*N* = 3,246)

Personal information	Number of participants
Gender	
males	2,184
females	1,056
missing	6
Marital status	
married	446
not married	2,784
missing	16
Age	
under 20 years	33
20–24 years	2,212
25–29 years	759
30–34 years	203
35+ years	32
Missing	7
Degree specialisation	
Bachelor of Arts with Education	2,342
Bachelor of Science with Education	457
Bachelor of Education with Arts	214
Bachelor of Education with Science	22
Missing	11
Year of study	
Beginning year 1	1,018
Beginning year 2	775
Beginning year 3	875
End year 4	562
Missing	16
Financial responsibilities	
the only financial provider for the family	687
share family financial responsibilities with others	1,311
no financial responsibilities for others	1,044
missing	204

Note. Missing = number of respondents who did not fill in a particular response.

Commitment to teaching

We drew on commitment scales based on the previous literature. However, these were not entirely suitable for our study, as some were basically organisational commitment scales measuring an individual's affective, normative and continuance commitment to an organisation in general, with some focusing on specific professions, such as nursing (e.g., Hackett, Lapierre & Hausdorf, 2001; Meyer et al., 1993). Commitment scales from the field of education (e.g., Ware & Kitsantas, 2007; Watt & Richardson, 2008) were one-dimensional, focusing on commitment to the teaching profession only, not including teachers' commitment to students and teaching subjects. Although the scales from these studies did not entirely meet our study re-quirements – i.e., a scale that would measure student-teachers' commitment to teaching in several objects – they formed the basis for constructing our scales. The 'Commitment-to-Teaching Scale' (CTS) was developed on the basis the literature mentioned above resulting in a list of 35 items referring to various aspects of commitment to teaching. All items were answered on a 5-point Likert-type scale, with 1 = not at all and 5 = very much.

The 35 commitment items were subjected to an exploratory principal component factor analysis using varimax rotation, in order to determine the underlying factors. The analysis resulted into two factors, having six items that were double loading. We deleted the double loading items. The final factor analysis consisted of two components, which explained 25% and 24% of the variance in commitment scores, respectively. We labelled the first component 'Commitment to the teaching profession' (CP, 15 items) with items showing student-teachers' inclination to liking of the teaching profession in general. Example items are '*Teaching is an ideal profession for me*' and '*I feel guilty if I leave the teaching profession.*' We labelled the second component 'Commitment to student learning' (CL, 14 items) with items showing student-teachers' interest in the students and the teaching act. Example items are '*I believe I have the responsibility to do the best for every student*' and '*I have the responsibility to make my major teaching subject interesting to my students.*' Next, reliability analyses were performed on the two identified factors (CP and CL). In Table 2, we present the reliability indicated by Cronbach's alpha and descriptive statistics, showing satisfying reliabilities for both CP and CL scales. A

Cronbach's α of at least 0.70 is generally understood as acceptable for research purposes (Nunnally, 1978).

Intention to enter the teaching profession

The scale 'Intentions to enter the teaching profession' included three items based on Rots et al. (2007, 2010): 1) '*I am certain I will take up teaching after my graduation*'; 2) '*I intend to teach for a reasonable period of time after my training*'; and 3) '*I am sure I will take up teaching as soon as I graduate.*' These items were answered on a 5-point Likert-type scale, with 1 = not at all and 5 = very much, and formed a reliable scale (see Table 2). Exploratory principal component factor analysis suggested only one factor.

Table 2 Descriptive statistics for the dependent and independent variables

	Number of items	*M*	*SD*	Cronbach's α	*N*
Commitment to teaching					
commitment to teaching profession (CP)	15	3.684	0.899	.914	3,246
commitment to student learning (CL)	14	4.397	0.667	.911	3,246
Intention	3	3.994	0.945	.704	3,246
Personal characteristics					
self-efficacy	12	4.396	0.679	.919	3,245
Environmental aspects					
significant others (SO)	4	3.396	1.077	.764	3,246
school condition (SC)	4	2.476	0.957	.670	3,246
Learning experiences					
attitudes to teaching profession (ATP)	7	2.904	0.957	.832	3,246
attitudes to subject (ATS)	4	4.049	0.875	.704	3,246
programme satisfaction	9	3.949	0.803	.817	3,240

Personal characteristics

We adapted the 'Teachers' Sense of Efficacy Scale' (TSES, short form with 12 items) developed by Tschannen-Moran and Woolfolk Hoy (2001), which includes instructional strategies, classroom management and student engagement sub-scales. We slightly modified the self-efficacy items, which were originally in question form, to statement form so as to be consistent with the rest of the questionnaire. Items for this scale included, "*I think I can use a variety of assessment strategies*" and "*I think I can motivate students who show low interest in schoolwork.*" All items were answered on a 5-point Likert-type scale, with 1 = Not at all and 5 = Very much. The scale reached a high reliability score (see Table 2). Factor analysis extracted only one factor, as observed by the TSES developers in the case of student-teachers. Other personal characteristics such as age and gender were examined as participant information in the questionnaire that can be found in Table 1.

Environmental determinants

Two types of environmental determinants were distinguished, namely the personal environment and the perceived school and social environment. First, we measured the environmental determinants that refer to the personal environment of the participants, such as marital status, year of study, subject specialisation (major vs. non-major in education, and Science vs. Arts subjects) and Financial responsibilities for others (see Table 1). Second, we collected data on the perceived school and social environment based on scholarly work on motivation for choosing teaching as a career (e.g., Richardson & Watt, 2006; Rots et al., 2010; Watt & Richardson, 2007). This scale consisted of 15 items, which were answered using a 5-point Likert-type scale, with 1 = not at all and 5 = very much. We performed exploratory principal component factor analysis with varimax rotation in order to determine the underlying factors. Based on these factor analyses and additional reliability analyses, we determined two scales: 1) Significant others (SO; 4 items explaining 22% of the variance in scores) showing perceived support of parents and friends with items such as, "*I feel that my family is happy with my decision to become a teacher,*" and "*I feel that my close friends are happy with my decision to become a teacher*"; and 2) School conditions (SC; 4 items explaining 19% of the variance in scores), showing perceived school conditions, with items such as, "*I think that schools have enough teaching facilities*" and "*I am willing to teach in rural schools.*" Reliability scores and descriptive statistics are presented in Table 2.

Learning experiences

To capture student-teachers' perceptions of, and attitudes towards, the teaching profession, teachers, and teaching subjects, and student-teachers' satisfaction with their teacher education programme we constructed a 'Teaching Attitude Scale' based on Kyriacou and Kunc (2007) and Watt and Richardson (2007, 2008). All 18 items were answered on a five-point Likert-type scale, with 1 = not at all and 5 = very much. An exploratory principal component factor analysis using the varimax rotation method was conducted distinguishing two sub-scales: 1) Attitude towards the teaching profession (ATP; 7 items) showing liking of the teaching profession, and 2) Attitude towards the teaching subject (ATS; 4 items) showing the liking of the subject. These two scales

explained 31% and 21%, respectively. Items in the ATP sub-scale included, "*I believe teaching is a secure job*" and "*I believe teaching is a high-status occupation.*" Items for the ATS sub-scale included, "*I believe that most students like my major teaching subject*" and "*I think that it is important my major teaching subject is taught in secondary schools.*" Table 2 indicates the Cronbach's alpha value for the reliability test.

With regard to student-teachers' satisfaction with the teacher education programme we constructed a nine-item scale based on the work of Rots et al. (2007). Factor analysis and reliability analysis showed that these newly developed items constituted a reliable scale, forming only one factor component (reliability and descriptive statistics are shown in Table 2). Items included, "*I am happy with the way I am being prepared to become a teacher*" and "*I am satisfied with my teacher education training programme.*" All items were answered on a 5-point Likert-type scale, with 1 = not at all and 5 = very much.

Analysis
In addition to descriptive statistics (see Table 1 and 2) and correlations between the questionnaire scales scores (see Table 3), we performed multiple linear regression analyses. In order to investigate relationships between personal characteristics, environmental determinants and learning experiences on the one hand, and student-teachers' commitment to the teaching profession and to student learning and their intention to enter the profession on the other hand, we performed regression analyses with forced entry method for each dependent variable in two steps. We first decided to split the three clusters of independent variables into seven blocks: the personal characteristics cluster was split into: 1) stable characteristics (age and gender), and 2) self-

efficacy; the environmental determinants cluster was split into 3) social environment (Significant others), 4) school environment (school conditions) and 5) personal environment (marital status, financial responsibility, degree specialisation and year of study); learning experiences cluster was split into 6) formal learning (programme satisfaction), and 7) attitudes based on informal learning experiences (attitudes towards the profession and attitudes toward teaching subject). In the first step, for each of the three dependent variables, we successively entered seven blocks, with independent variables to decide the strength of all predictors. In the second step, we repeated these regression analyses, but now with the block of the strongest variables first. The outcomes of both steps are presented in the results section. Although the correlations between the scale scores were quite high (see Table 3), the value of the Variance Inflation Factor (VIF) was around or less than 2 in all analyses, which means that no problems with multicollinearity were detected. For effect size for each factor, we used semi-partial correlations (r_{sp}) with a similar interpretation of R^2-change (Aloe & Becker, 2012). As cut-off values for small, medium and strong effect sizes, we used r_{sp} = 0.1, 0.3 and 0.5, respectively (Cohen, 1988). All analyses were carried out with the SPSS 25 package.

Findings
The aim of this study was to investigate factors that explain differences in student-teachers' commitment to teaching and intention to enter the teaching profession. Guided by Social Cognitive Theory, it examined the relationship between student-teachers' commitment to teaching and intention to enter the teaching profession on one hand and student-teachers' personal characteristics, learning experiences and environmental determinants on the other hand.

Table 3 Correlations between scales used as predictors in the regression analyses and the dependent variables

	1	2	3	4	5	6	7	8
1. Commitment to teaching profession	1							
2. Commitment to student learning	0.698	1						
3. Intentions to enter the profession	0.690	0.672	1					
4. Self-efficacy	0.453	0.662	0.469	1				
5. Significant others	0.615	0.443	0.436	0.314	1			
6. School conditions	0.313	0.453	0.318	0.202	0.422	1		
7. Attitudes towards teaching profession	0.441	0.620	0.446	0.311	0.632	0.626	1	
8. Attitudes towards teaching subject	0.435	0.451	0.562	0.525	0.419	0.317	0.501	1
9. Programme satisfaction	0.498	0.578	0.586	0.588	0.472	0.388	0.489	0.488

Note. N = at least 3,239; all correlations $p < 0.001$.

Student-Teachers' Commitment to the Teaching Profession

For student-teachers' Commitment to the teaching profession, the sequence of the seven blocks entered in the regression analysis was: 1) Learning experience, 2) Significant others, 3) Programme satisfaction, 4) School conditions, 5) Self-efficacy, 6) Personal environment, and 7) Stable characteristics. The results are summarised in Table 4. The variables from the Learning experience cluster appeared to have the strongest relationship with student teachers' Commitment to the teaching profession. The more positive attitudes towards the profession ($\beta = 0.251$; $r_{sp} = 0.158$) and the more positive the programme satisfaction ($\beta = 0.200$; $r_{sp} = 0.143$), the more student-teachers were committed to the profession. These were small to moderately strong relationships. An additional moderately strong relationship with Commitment to the teaching profession was found with Significant others ($\beta = 0.287$; $r_{sp} = 0.2138$), with the stronger the support from significant others, the more commitment to the profession that student-teachers reported. The strength of the positive relationship of student-teachers' Self-efficacy and perceived School conditions appeared to be small, though significant. Of the other factors, Degree specialisation (0 = non-education major and 1 = education major) i.e., student-teachers taking an education major, was reported to be more committed than student-teachers with a non-education major. Year 4 and Financial responsibilities showed significant positive relationships with Commitment to the teaching profession as well. These two relationships are also weak with student-teachers at the end of the final year more committed to the teaching profession compared to the other student-teachers, and the greater the financial responsibilities of the student teacher, the more committed they were to the teaching profession.

Student-Teachers' Commitment to Student Learning

For student-teachers' Commitment to student learning, the sequence of the seven blocks entered in the regression analysis was: 1) Self-efficacy; 2) Learning experience; 3) Programme satisfaction; 4) Significant others; 5) School conditions; 6) Personal environment; and 7) Stable characteristics. The results of the final regression analysis are summarised in Table 4. As in the results of the previous analyses, the variables from the Learning experience cluster appear to have a significant relationship with student teachers' Commitment to student learning. The more positive student teachers were about teaching the subject ($\beta = 0.175$; $r_{sp} = 0.132$) and the more satisfied they were about the programme ($\beta = 0.147$; $r_{sp} = 0.105$), the more committed to student learning they reported to be. Compared to the previous analysis with Commitment to the teaching profession, student-teachers' Self-efficacy and Significant others swapped position in the rank order of explaining differences in commitment, where Self-efficacy showed a moderately strong positive relationship ($\beta = 0.410$; $r_{sp} = 0.307$) and Significant others a small positive relationship ($\beta = 0.116$; $r_{sp} = 0.086$) with Commitment to student learning. Again, the relationship of perceived School conditions with Commitment to student learning appeared to be relatively weak, though significant ($\beta = 0.036$; $r_{sp} = 0.028$). Of the other factors, five variables were found to be significantly related to Commitment to student learning, as follows: 1) Year 1 showed a significant relationship, which means that students at the beginning of their teacher education programme were more committed to student learning compared to the other years; 2) Degree specialisation; 3) Marital status (with 1 = yes); 4) Financial responsibilities; and 5) Age, that showed weak, but significant positive relationships with Commitment to student learning. This means that student-teachers taking an educational major, students who were not married, students with financial responsibilities, and older students were relatively more committed to student learning.

Table 4 Results of the multiple regression analyses for commitment to the teaching profession, commitment to student learning, and intentions to enter the teaching profession

Predictors	Commitment to teaching profession			Commitment to student learning			Intention to enter the profession		
	B (s.e.)	β	r_{sp}	B (s.e.)	β	r_{sp}	B (s.e.)	β	r_{sp}
Constant	0.142 (0.095)			0.979 (0.069)			0.541 (0.119)		
Personal characteristics									
Gender	0.046 (0.025)	0.024		0.028 (0.018)	0.020	0.040	0.016 (0.031)	0.008	
Age	0.030 (0.021)	0.022		0.050 (0.015)	0.051**		-0.029 (0.026)	-0.020	
			0.103			0.307			0.157
Self-efficacy	0.184 (0.022)	0.138***		0.402 (0.016)	0.410***		0.293 (0.027)	0.209***	
Environmental determinants									
Significant others	0.240 (0.014)	0.287***	0.213	0.071 (0.010)	0.116***	0.086	0.140 (00.17)	0.160***	0.118
School conditions	0.063 (0.015)	0.067***	0.051	0.025 (0.011)	0.036*	0.028	0.023 (0.019)	0.023	
Course of study	-0.50 (0.029)	-0.022		-0.003 (0.021)	-0.002		-0.030 (0.037)	-0.013	
Degree specialisation	0.127 (0.034)	0.048***	0.045	0.076 (0.025)	0.039**	0.036	0.092 (0.043)	0.033*	0.031
Beginning year 1	-0.007 (0.031)	-0.003		0.089 (0.023)	0.062***	0.047	0.057 (0.039)	0.028	
Beginning year 3	0.008 (0.031)	0.004		0.011 (0.023)	0.008		0.022 (0.039)	0.010	
End of year 4	0.075 (0.036)	0.032*	0.025	0.028 (0.026)	0.016		0.007 (0.045)	0.003	
Marital status	0.020 (0.038)	0.008		-0.087 (0.028)	0.045**	0.038	-0.008 (0.048)	-0.003	
Financial responsibility	0.037 (0.015)	0.030*	0.029	0.025 (0.011)	0.027*	0.027	0.025 (0.019)	0.019	
Learning experiences									
Attitudes teaching profession	0.237 (0.018)	0.251***	0.158	0.039 (0.013)	0.056**	0.035	0.113 (0.023)	0.114***	0.071
Attitudes teaching subject	0.018 (0.017)	0.017		0.134 (0.012)	0.175***	0.132	0.107 (0.021)	0.098***	0.074
Programme satisfaction	0.227 (0.019)	0.200***	0.143	0.123 (0.014)	0.147***	0.105	0.221 (0.024)	0.186***	0.133
Overall model									
Adjusted R^2	0.555			0.559			0.363		
F (*df*) and *p*	F(15,3003) = 250.361; $p < 0.001$			F(15,3003) = 254.666; $p < 0.001$			F(15,3003) = 115.035; $p < 0.001$		

Note. Course of study (with 0 = Arts and 1 = Science); Degree specialisation (with 0 = combined major; 1 = Educational major); Marital status (with 1 = yes). Significant relationships are indicated with ***$p < .001$; **$p < .01$ and *$p < .05$. r_{sp} = semi-partial correlation is used as effect size for each predictor (Aloe & Becker, 2012), with 0.10 indicating small effect sizes, 0.30 medium effect sizes and 0.50 large effect sizes (Cohen, 1988).

Student-Teachers' Intentions to Enter the Teaching Profession

In terms of student-teachers' Intentions to enter the teaching profession, the sequence of the seven blocks entered in the regression analysis was: 1) Learning experience, 2) Programme satisfaction, 3) Self-efficacy, 4) Significant others, 5) School conditions, 6) Personal environment, and 7) Stable characteristics. The results are summarised in right column of Table 4. The explained variance of the overall model was considerably less compared to the two commitment variables ($R^2 = 0.363$). The results are similar to Commitment to student learning, but show weaker relationships. As in the previous analyses for the Commitment to teaching variable, the variables from the Learning experience cluster again appear to have a significant relationship with student teachers' Intentions to enter the teaching profession, with both attitude scales ($\beta = 0.114$; $r_{sp} = 0.071$ for ATP and $\beta = 0.098$; $r_{sp} = 0.074$ for ATS) and Programme satisfaction ($\beta = 0.186$; $r_{sp} = 0.133$) showing similar small, but significant positive relations with Intention to enter the teaching profession. As in the previous analyses, student-teachers' Self-efficacy also showed a significant, small to moderately strong relationship with Intentions to enter the teaching profession ($\beta = 0.209$; $r_{sp} = 0.157$). The relationship of Significant others was similar with the second regression analyses ($\beta = 0.160$; $r_{sp} = 0.118$) and perceived School condition was not significantly related to Intentions to enter the teaching profession. Of the other factors, only Degree specialisation showed a weak though significant effect, which means that student-teachers enrolled in an educational major showed relatively stronger intentions to enter the teacher profession compared to other student-teachers.

Discussion and Conclusion

The current study aimed to investigate which factors explain differences in student-teachers' commitment to teaching. The results show a number of factors that are related to student-teachers' commitment and intention to enter the teaching profession. These factors explained relatively more differences between student-teachers in their commitment to teaching than in their intention to enter the profession. The factors were clustered into Personal characteristics, Environmental determinants and Learning experiences, following Bandura's Social-Cognitive theory. With respect to the hypotheses regarding Personal characteristics, stable background characteristics (age and gender) were generally not related to student-teachers' commitment to teaching, which means that Hypothesis 1 and 2 cannot be confirmed. However, self-efficacy generally showed a moderately strong relationship with student-teachers' commitment to

student learning, confirming Hypothesis 3. From the cluster of Environmental determinants, both the support of significant others and positive school conditions showed a significant, albeit weak relationship with the commitment variables, where Hypothesis 4 and 5 can thus be confirmed. The hypotheses related to the cluster of Learning experience (Hypothesis 6 and 7) can all be confirmed.

Learning experiences appeared to be the most influential variable in our study. We found a strong relationship between all Learning experience variables (i.e., Programme satisfaction, Attitudes towards the teaching profession, and Attitudes towards the teaching subject) and student-teachers' commitment to the teaching profession, their Commitment to students' learning, and their Intentions to enter the teaching profession. In line with other studies (i.e., Durksen & Klassen, 2012; Rots & Aelterman, 2009; Rots et al., 2007, 2010, 2012, 2014), our study confirms the importance of teacher education and student-teachers' satisfaction with their teacher education programme in influencing their commitment to teaching. Our study also supports findings from previous research (Choi & Tang, 2009; Thomson et al., 2012) showing a positive relationship between student-teachers' attitude towards the profession, and their commitment to teaching. Notably, we found a positive relationship between student-teachers' Attitude towards their teaching subject, their Commitment to student learning, and their Intention to enter the profession. It may be that student-teachers feel obliged to share their passion for their subjects with students. However, our study only focused on student-teachers preparing for secondary schools and teachers' colleges, so the outcome may have been different if we had examined primary school student-teachers, since they tend not to have subject allegiances in the way that secondary teachers do. Curiously, we did not find a relationship between student-teachers' Attitudes to the subject and Commitment to the teaching profession. This finding supports the fact that teachers may have different commitment objects, where a teacher who is committed to their subject and students' learning may not necessarily be committed to the teaching profession (Dannetta, 2002).

As might be expected, Self-efficacy was the strongest personal factor in the three regression models. Our findings emphasise the important relationship between student-teachers' self-efficacy and their commitment to teaching as shown in other studies. Student-teachers with a highly perceived ability to teach are more likely to be highly engaged in student learning (Chan, Lau, Nie, Lim & Hogan, 2008; Chesnut & Cullen, 2014), to be committed to the teaching profession (Durksen & Klassen, 2012; Klassen & Chiu, 2011; Klassen et

al., 2013), and to show strong intention to enter the teaching profession (Rots et al., 2007). In all three regression models of the current study, Age and Gender showed weak or insignificant relationship with student-teachers' commitment to teaching. This supports the relative unimportance of these factors (Durksen & Klassen, 2012; Rots et al., 2010, 2014; Watt et al., 2007), but also contradicts findings from other studies that found age differences in commitment among student-teachers (e.g. Guarino et al., 2006; Johnson & Kardos, 2005; Watt et al., 2007). It is possible that our findings might have been affected by the demographic profile of participants, whereby 70% were below 25 years of age.

Another major finding is a strong relation of perceived support from Significant others with commitment in all three models. This means that for student-teachers with higher perceived support from their family and friends for deciding to become a teacher, the greater their commitment to teaching and intention to enter the teaching profession. In this respect, our findings support the studies of Schutz et al. (2001) and Thomson et al. (2012). However, our findings differ from those of Watt and Richardson (2007) in Australia, who found that the presence of Significant others was not an important predictor of commitment to teaching. This result may be explained by the fact that Watt and Richardson examined commitment indirectly through student-teachers' motivating factors for choosing teaching as their career. Our study directly examined the influence of perceived support from Significant others in student-teachers' commitment to teaching. Moreover, this may be explained by some cultural differences. Hofstede (2001) and Tamis-LeMonda, Way, Hughes, Yoshikawa, Kalman and Niwa (2008) indicate that in countries with individualistic cultures, parents tend to encourage their children to develop into independent, autonomous individuals who make their own choices. In contrast, in countries with collectivistic cultures, parents tend to promote relatedness and interdependence in their children in which among other things, respect and obedience to authority is important. Based on Hofstede's cultural dimensions, Australia's and Tanzania's scores on individualism are 90 and 25 respectively, implying that Australians have an individualistic culture while Tanzanians have a collectivistic culture.

Moreover, we found a strong positive relationship between student-teachers' perceptions of School conditions with their Commitment to the teaching profession and student learning. This confirms the importance of a supportive school environment for student-teachers' commitment to teaching, as identified in the study of Huang and Waxman (2009). In contrast, student-teachers' perceived School conditions was not a significant predictor of their Intentions to enter the teaching

profession. Although we found a weak relation of student-teachers' Degree specialisation with their commitment to the teaching and intentions to enter the teaching profession, it is important to note that being an education major student-teacher has a stronger relation with commitment than being a non-education major. A possible reason for this might be that education majors to some extent have already made their decision to become teachers, because courses in this programme do not offer many possibilities for a job out of the education field. In contrast, non-education majors have possibilities to find jobs other than teaching, as they are a specialists in their subject areas.

Findings from the current study follow Social Cognitive Theory, which maintains that behaviour can be explained as a function of the person, their previous behaviour, and environmental factors. Also, findings from the current study show that differences in student-teachers' commitment to teaching can be explained by their self-efficacy beliefs (personal character), their attitudes towards teaching, the teaching profession, and their teaching subjects, as well as their satisfaction with the teacher education programme (learning experiences), and perceived support from significant others and school conditions (environmental characteristics).

Implications

Although there is a lack of consensus within the literature on how to improve teacher education programmes, since there is no one universal approach to preparing teachers (Korthagen, Loughran & Russell, 2006), understanding certain variables that impact student-teachers' commitment to teaching offers insights to teacher educators in teacher education as to what to consider in enhancing commitment to teaching among student-teachers. Due to the fact that low levels of commitment to teaching is a problem facing many countries (Mulkeen et al., 2007; OECD, 2014) teacher educators from different contexts may consider the findings and implications of this study helpful. From the current study, two important implications emerge for teacher education programmes. First, this study emphasises the importance of Learning experiences variables (student-teachers' attitudes towards the teaching profession and school subject and satisfaction with their teacher education programme) on their commitment to teaching. Teacher educators need to understand and be aware of student-teachers' underlying perceptions and beliefs about subjects and the teaching profession. From this, teacher educators can design interventions that may shift student-teachers' negative attitudes and/or enhance positive attitudes towards the profession and their teaching subjects. Furthermore, teacher educators can address student-teacher attitudes by presenting

positive role models, so that student-teachers can be prompted to think about the teaching profession more positively. At the same time, much emphasis should be placed on developing student-teachers' subject matter knowledge and pedagogical content knowledge (PCK). Good subject matter knowledge and PCK is important in enhancing student-teachers' attitude towards their subject (Johnston & Ahtee, 2006). Our study also emphasises the importance of student-teachers' feelings of satisfaction with their teacher education programme. Teacher education institutes, therefore, need to develop programmes that optimise interest and satisfaction among student-teachers, for example through teacher educators' support and mentorship for student-teachers, as emphasised in previous studies (Durksen & Klassen, 2012; Rots et al., 2012), as well as ensuring there are qualified and committed teacher educators who can be role models of the profession. It is also important that teacher education programmes are regularly evaluated to investigate these aspects.

Second, in line with previous research, these findings underscore the possible role of teacher self-efficacy in enhancing student-teachers' commitment to teaching and intention to enter the teaching profession. Hence, teacher educators must recognise the importance of, and do their best to foster teaching self-efficacy in student-teachers. For example, teacher educators could help student-teachers in mastering their teaching through guidance and mentorship during teaching practicum - as mastery experiences appear to make the strongest contribution to self-efficacy judgments among teachers (Tschannen-Moran & Woolfolk Hoy, 2007).

Concluding Remarks
This study aimed at investigating factors that explain differences in student-teachers' commitment to teaching. The findings offer important implications for educational practice. Nevertheless, interpretation of these results should be treated cautiously as they rely solely on data from one university in Tanzania and thus might limit generalisability. However, our findings confirm those from other studies. The problem of low levels of commitment to teaching in schools is a real problem internationally, and in the context of this study in Tanzania. Teacher education programmes may exert little influence on commitment in terms of systemic and contextual factors, however, there are areas where teacher education can make a difference. It is now 30 years ago that Chapman (1984) postulated that the roots of teacher attrition reach back to teachers' initial career commitment. Thus, fostering student-teachers' commitment to teaching through the careful design of initial teacher education could well result in an increased long-term commitment to teaching.

We suggest that future studies could focus on qualitative explorations of student-teachers' commitment, for example through case studies, that would provide more in-depth understanding of commitment, or longitudinal studies that follow graduating student-teachers into the field to examine their early experiences and its impact on commitment.

Authors' Contributions
Ikupa Moses was the main researcher of this study, responsible for all parts of the research including reporting. The other authors supported the instrument development and data analyses, provided feedback on earlier versions of the manuscript and reviewed the final manuscript.

References
Aloe AM & Becker BJ 2012. An effect size for regression predictors in meta-analysis. *Journal of Educational and Behavioral Statistics*, 37(2):278–297. https://doi.org/10.3102%2F1076998610396901

Bandura A 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Billingsley BS 2004. Special education teacher retention and attrition: A critical analysis of the research literature. *The Journal of Special Education*, 38(1):39–55. https://doi.org/10.1177%2F00224669040380010401

Bruinsma M & Jansen EPWA 2010. Is the motivation to become a teacher related to pre-service teachers' intentions to remain in the profession? *European Journal of Teacher Education*, 33(2):185–200. https://doi.org/10.1080/02619760903512927

Chan WY, Lau S, Nie Y, Lim S & Hogan D 2008. Organizational and personal predictors of teacher commitment: The mediating role of teacher efficacy and identification with school. *American Educational Research Journal*, 45(3):597–630. https://doi.org/10.3102%2F0002831208318259

Chapman DW 1984. Teacher retention: The test of a model. *American Educational Research Journal*, 21(3):645–658. https://doi.org/10.3102%2F00028312021003645

Chesnut SR & Cullen TA 2014. Effects of self-efficacy, emotional intelligence, and perceptions of future work environment on preservice teacher commitment. *The Teacher Educator*, 49(2):116–

132. https://doi.org/10.1080/08878730.2014.887168

Choi PL & Tang SYF 2009. Teacher commitment trends: Cases of Hong Kong teachers from 1997 to 2007. *Teaching and Teacher Education*, 25(5):767–777. https://doi.org/10.1016/j.tate.2009.01.005

Christophersen KA, Elstad E, Solhaug T & Turmo A 2016. Antecedents of student teachers' affective commitment to the teaching profession and turnover intention. *European Journal of Teacher Education*, 39(3):270–286. https://doi.org/10.1080/02619768.2016.1170803

Cohen J 1988. *Statistical power analysis for the behavioural sciences* (2nd ed). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cooper JM & Alvarado A 2006. *Preparation, recruitment, and retention of teachers*. Brussels, Belgium: International Institute for Educational Planning. Available at https://unesdoc.unesco.org/ark:/48223/pf00001520 23. Accessed 6 January 2019.

Dannetta V 2002. What factors influence a teacher's commitment to student learning? *Leadership and Policy in Schools*, 1(2):144–171.

Day C, Elliot B & Kington A 2005. Reform, standards and teacher identity: Challenges of sustaining commitment. *Teaching and Teacher Education*, 21(5):563–577. https://doi.org/10.1016/j.tate.2005.03.001

DeAngelis KJ & Presley JB 2011. Towards a more nuanced understanding of new teacher attrition. *Education and Urban Society*, 43(5):598–626. https://doi.org/10.1177%2F0013124510380724

Durksen TL & Klassen RM 2012. Pre-service teachers' weekly commitment and engagement during a final training placement: A longitudinal mixed methods study. *Educational & Child Psychology*, 29(4):32–46.

Fresko B, Kfir D & Nasser F 1997. Predicting teacher commitment. *Teaching and Teacher Education*, 13:429–438.

Guarino CM, Santibañez L & Daley GA 2006. Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, 76(2):173–208. https://doi.org/10.3102%2F00346543076002173

Hackett RD, Lapierre LM & Hausdorf PA 2001. Understanding the links between work commitment constructs. *Journal of Vocational Behavior*, 58(3):392–413. https://doi.org/10.1006/jvbe.2000.1776

Hofstede G 2001. *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed). London, England: Sage.

Huang SL & Waxman HC 2009. The association of school environment to student teachers' satisfaction and teaching commitment. *Teaching and Teacher Education*, 25(2):235–243. https://doi.org/10.1016/j.tate.2008.07.015

Ingersoll RM & Smith TM 2003. The wrong solution to the teacher shortage. *Educational Leadership*, 60(8):30–33. Available at http://citeseerx.ist.psu.edu/viewdoc/download?doi= 10.1.1.182.106&rep=rep1&type=pdf. Accessed 26 December 2018.

Johnson SM & Kardos SM 2005. Bridging the generation gap. *Educational Leadership*, 62(8):8–14.

Johnston J & Ahtee M 2006. Comparing primary student teachers' attitudes, subject knowledge and pedagogical content knowledge needs in a physics activity. *Teaching and Teacher Education*, 22(4):503–512. https://doi.org/10.1016/j.tate.2005.11.015

Kılınç A, Watt HMG & Richardson PW 2012. Factors influencing teaching choice in Turkey. *Asia-Pacific Journal of Teacher Education*, 40(3):199–226. https://doi.org/10.1080/1359866X.2012.700048

Klassen R, Wilson E, Siu AFY, Hannok W, Wong MW, Wongsri N, Sonthisap P, Pibulchol C, Buranachaitavee Y & Jansem A 2013. Preservice teachers' work stress, self-efficacy, and occupational commitment in four countries. *European Journal of Psychology of Education*, 28(4):1289–1309. https://doi.org/10.1007/s10212-012-0166-x

Klassen RM & Chiu MM 2011. The occupational commitment and intention to quit of practicing and pre-service teachers: Influence of self-efficacy, job stress, and teaching context. *Contemporary Educational Psychology*, 36(2):114–129. https://doi.org/10.1016/j.cedpsych.2011.01.002

Korthagen F, Loughran J & Russell T 2006. Developing fundamental principles for teacher education programs and practices. *Teaching and Teacher Education*, 22(8):1020–1041. https://doi.org/10.1016/j.tate.2006.04.022

Kyriacou C & Kunc R 2007. Beginning teachers' expectation of teaching. *Teaching and Teacher Education*, 23(8):1246–1257. https://doi.org/10.1016/j.tate.2006.06.002

Maliki AE 2013. Attitudes towards the teaching profession of students from the faculty of education, Niger Delta University. *International Journal of Social Science Research*, 1:11–18.

Meyer JP, Allen NJ & Smith CA 1993. Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, 78(4):538–551. Available at https://www.researchgate.net/profile/John_Meyer1 6/publication/211391140_Commitment_to_Organi zations_and_Occupations_Extension_and_Test_of _a_Three-Component_Conceptualization/links/5a312c810f7e 9b2a2838d328/Commitment-to-Organizations-and-Occupations-Extension-and-Test-of-a-Three-Component-Conceptualization.pdf. Accessed 21 December 2018.

Moses I, Admiraal WF & Berry AK 2016. Gender and gender roles differences in student-teachers' commitment to teaching. *Social Psychology of Education*, 19(3):475–492. https://doi.org/10.1007/s11218-016-9340-3

Mulkeen A, Chapman DW, DeJaeghere JG & Leu E 2007. *Recruiting, retaining, and retraining secondary school teachers and principals in Sub-Saharan Africa* (World Bank Working Paper No. 99). Washington, DC: The World Bank.

Mulkeen A & Crowe-Taft N 2010. *Teacher attrition in Sub-Saharan Africa: The neglected dimension of the teacher supply challenge. A review of literature*. Paris, France: UNESCO. Available at https://unesdoc.unesco.org/ark:/48223/pf00001881 97. Accessed 9 January 2019.

Nunnally JC 1978. *Psychometric theory* (2nd ed). New York, NY: McGraw-Hill.

OECD 2005. *Teachers matter: Attracting, developing and retaining effective teachers*. Paris, France: Author. Available at https://www.oecd.org/education/school/34990905.pdf. Accessed 10 January 2019.

OECD 2014. *New insights from TALIS 2013: Teaching and learning in primary and upper secondary education*. Paris, France: Author. https://doi.org/10.1787/9789264226319-en

Richardson PW & Watt HMG 2006. Who chooses teaching and why? Profiling characteristics and motivations across three Australian universities. *Asia-Pacific Journal of Teacher Education*, 34(1):27–56. https://doi.org/10.1080/13598660500480290

Rots I & Aelterman A 2009. Teacher education graduates' entrance into the teaching profession: Development and test of a model. *European Journal of Psychology of Education*, 24:453. https://doi.org/10.1007/BF03178761

Rots I, Aelterman A & Devos G 2014. Teacher education graduates' choice (not) to enter the teaching profession: Does teacher education matter? *European Journal of Teacher Education*, 37(3):279–294. https://doi.org/10.1080/02619768.2013.845164

Rots I, Aelterman A, Devos G & Vlerick P 2010. Teacher education and the choice to enter the teaching profession: A prospective study. *Teaching and Teacher Education*, 26(8):1619–1629. https://doi.org/10.1016/j.tate.2010.06.013

Rots I, Aelterman A, Vlerick P & Vermeulen K 2007. Teacher education, graduates' teaching commitment and entrance into the teaching profession. *Teaching and Teacher Education*, 23(5):543–556. https://doi.org/10.1016/j.tate.2007.01.012

Rots I, Kelchtermans G & Aelterman A 2012. Learning (not) to become a teacher: A qualitative analysis of the job entrance issue. *Teaching and Teacher Education*, 28(1):1–10. https://doi.org/10.1016/j.tate.2011.08.008

Schutz PA, Crowder KC & White VE 2001. The development of a goal to become a teacher. *Journal of Educational Psychology*, 93(2):299–308. https://doi.org/10.1037/0022-0663.93.2.299

Super DE 1990. A life-span, life-space to approach to career development. In D Brown & L Brooke (eds). *Career choice and development: Applying contemporary theories to practice* (2nd ed). San Francisco, CA: Jossey-Bass.

Tait M 2008. Resilience as a contributor to novice teacher success, commitment, and retention. *Teacher Education Quarterly*, 35(4):57–75.

Tamis-LeMonda CS, Way N, Hughes D, Yoshikawa H, Kalman RK & Niwa EY 2008. Parents' goals for children: The dynamic coexistence of individualism and collectivism in cultures and individuals. *Social Development*, 17(1):183–209. https://doi.org/10.1111/j.1467-9507.2007.00419.x

Thomson MM, Turner JE & Nietfeld JL 2012. A typological approach to investigate the teaching career decision: Motivations and beliefs about teaching of prospective teacher candidates. *Teaching and Teacher Education*, 28(3):324–335. https://doi.org/10.1016/j.tate.2011.10.007

Towse P, Kent D, Osaki F & Kirua N 2002. Non-graduate teacher recruitment and retention: Some factors affecting effectiveness in Tanzania. *Teaching and Teacher Education*, 18(6):637–652. https://doi.org/10.1016/S0742-051X(02)00024-0

Tschannen-Moran M & Woolfolk Hoy A 2001. Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7):783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Tschannen-Moran M & Woolfolk Hoy A 2007. The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23(6):944–956. https://doi.org/10.1016/j.tate.2006.05.003

Tungaraza FD 2012. Undergraduate teachers' views of teaching as a career: Was teaching their choice? *Journal of Adult Education*, 19:34–51.

Tyree AK Jr 1996. Conceptualizing and measuring commitment to high school teaching. *The Journal of Educational Research*, 89(5):295–304. https://doi.org/10.1080/00220671.1996.9941331

UNESCO Institute for Statistics 2016. *The world needs almost 69 million new teachers to reach the 2030 education goals*. Available at http://uis.unesco.org/sites/default/files/documents/fs39-the-world-needs-almost-69-million-new-teachers-to-reach-the-2030-education-goals-2016-en.pdf. Accessed 27 March 2017.

Ware H & Kitsantas A 2007. Teacher and collective efficacy beliefs as predictors of professional commitment. *The Journal of Educational Research*, 100(5):303–310. https://doi.org/10.3200/JOER.100.5.303-310

Watt H, Richardson P & Tysvaer N 2007. Profiles of beginning teachers' professional engagement and career development aspirations. In A Berry, A Clemans & A Kostogriz (eds). *Dimensions of professional learning: Professionalism, practice and identity*. Rotterdam, The Netherlands: Sense.

Watt HMG & Richardson PW 2007. Motivational factors influencing teaching as a career choice: Development and validation of the FIT-Choice scale. *The Journal of Experimental Education*, 75(3):167–202. https://doi.org/10.3200/JEXE.75.3.167-202

Watt HMG & Richardson PW 2008. Motivations, perceptions, and aspirations concerning teaching as a career for different types of beginning teachers. *Learning and Instruction*, 18(5):408–428. https://doi.org/10.1016/j.learninstruc.2008.06.002

Wolhuter C, Van der Walt H, Potgieter F, Meyer L & Mamiala T 2012. What inspires South African student teachers for their future profession? *South African Journal of Education*, 32(2):178–190. https://doi.org/10.15700/saje.v32n2a570