In-service science and mathematics teachers' motives and participation in continuous professional development

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ABSTRACT
Knowing in-service teachers' motives is important for understanding career choices, retention and participation in lifelong learning. We explored In-service Teachers' motives for Initial Teacher Education and participation in continuous professional development using a mixed method approach. A questionnaire combining closed-ended items with open-ended items was used to collect data from a convenient sample of seventy-seven in-service teachers. Mean scores were used to determine motives and drivers for participation. Content analysis was used to interpret individuals' views and experiences. First, the study revealed that in-service teachers had closely related aspirations, that is, to attain higher qualifications, increase chances for job change and higher earnings. Second, based on mean scores less than 2.5, in-service teachers were neither attracted to teaching by social nor extrinsic factors. The mean scores greater than 3, meant that in-service teachers were attracted to teaching by intrinsic and altruistic factors. Third, our study revealed that the Teacher Capacity Development programme was attractive because of a combination sponsorship and specialism areas offered by the institution. We recommend that universities to find ways of reducing fees and to provide affordable accommodation, as ways to increase enrolments. Furthermore, the government should sponsor the training of teachers as it does other social services sectors like nursing and the police.

KEY WORDS
Motives, in-service training, teacher capacity development

RÉSUMÉ
Il est important de connaître les motivations des enseignants en poste pour comprendre les choix de carrière, la rétention et la participation à l'apprentissage tout au long de la vie. Nous avons exploré les motifs des enseignants en service pour la formation initiale des enseignants et la participation au développement professionnel continu en utilisant une approche de méthode mixte. Un questionnaire combinant des questions fermées et des questions ouvertes a été utilisé pour recueillir des données auprès d'un échantillon pratique de soixante-dix-sept enseignants en service. Les scores moyens ont été utilisés pour déterminer les motifs et les facteurs de participation. L'analyse du contenu a été utilisée pour interpréter les points de vue et les expériences des individus.

MOTS-CLÉS
Motifs, formation en cours d'emploi, développement des capacités des enseignants

INTRODUCTION

There are many reasons people become teachers. However, classification and grouping the motives is not always uniform. In literature, examples of motives to join teaching include belonging, security and achievement (e.g., Ferrel & Daniel, 1993; Lortie, 1975; Ryan & Deci, 2000). Motives have been classified as positive and pull factors e.g., love for children, a desire to impart knowledge, an interest and excitement about teaching, and a desire to perform a valuable service to society (Orntein, 1982). Other motives are considered negative or push factors e.g., job security and pension, short working days and long vacations, difficulty of getting into other professions, and need for income (Orntein, 1982). Lortie (1975) classified motives into interpersonal, service, continuation, material benefit, and time-compatibility themes (Ferrel & Daniel, 1993; Lortie, 1975). Many people end up joining teaching because of external influences and fortuitous circumstances (Gould, 1934). Besides gender, age and level of teaching have been reported as determinants of career choices (Orntein, 1982). Knowing an individual's motives for joining teaching is important when it comes to understanding their attitudes and behaviours as teachers as well as in understanding teacher retention and participation in lifelong learning.

Motives to become teachers have been classified into instrinsic, altruistic and extrinsic factors. Intrinsic motivation refer to personal desire for teaching and include love of the subject of specialization and teaching as a devotion. Altruistic motives refer to the concern of other people; who can be children and adolescents, citizens and the desire to make a contribution to society. Extrinsic motives refer to rewards expected or benefits associated with being a teacher e.g., long holidays, flexible working conditions, job security, pay comparable with other professions and as stepping stone to other professions. In developed nations intrinsic and altruistic motives to become teachers are more important than extrinsic or material reward (Barmby, 2006; Bruinsma & Jansen, 2010; Krecic & Grmek, 2005). These factors influence quality of learning, work in schools and desire to remain in the profession. In developing nations extrinsic motives were reported to be more important than intrinsic and altruistic factors (Bastick, 2000; Mwamweda, 2010).

Besides the afore-mentioned benefits, teaching is failing to attract the best (keenest, the finest personalities and the most humane), and Higher Education Institutions (HEIs) are settling for the average (Orntein, 1982). Without reasonable enrolments, staff may lose their jobs. Some programmes and departments may have to be merged. Research on trainees' motives for joining the teaching profession has become attractive (Jungert et al., 2014). Thus, there is need to explore identities of potential students and what motivates people to enrol in HEIs.

What are the concerns of those who regulate teaching?

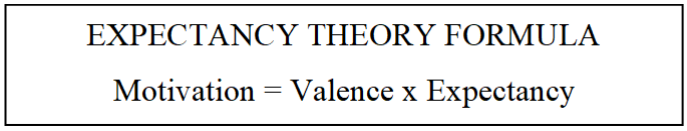
While there is no consensus on concerns of those who regulate teaching, it can be assumed that academic achievement tops the list. In some countries a high academic achievement is necessary to gain entry into teaching e.g., Finland, Germany, Singapore and Taiwan (Watt et al., 2017). In other countries, it is less competitive to get into teaching, and lower entry requirements are used to lure people into teaching. Concerns of non-academic qualities are also high on the list e.g., personality dimensions or interpersonal abilities (AITSL, 2015). There also concerns of literacy and numeracy requirements, examinations based on teaching standards and variations in routes to joining teaching. All these concerns may complicate motivations to join teaching.

THEORETICAL FRAMEWORKS

The study was guided by motivational theories, in particular Vroom's Expectancy Value (Eccles, 2009; Eccles et al., 1983); Achievement Goal Theory (Butler, 2007); and Self-

Determination Theory (Fernet et al., 2008; Ryan & Deci, 2000). Vroom's expectancy theory is based on three beliefs: valence, expectancy and instrumentality. People are motivated by outcomes and these rewards can be intrinsic, and altruistic in nature. Different people have different expectations and levels of desire of what they want to achieve. Instrumentality refers to perception that effort will lead to the required outcomes. Candidates who believe that a degree leads to a good job anywhere in the world, and who believe the likelihood that teaching degree will enable them to migrate to other countries, are likely to join teaching career and perform well in teacher education courses. The theory explains how individuals make choices.

FIGURE 1



Expectancy Valence Theory

According to the self-determination theory (SDT) people are motivated to grow and change by psychological needs. When individual's needs of competence, connection and autonomy are fulfilled, they are able to become self-determined (Ryan & Deci, 2000). It is also possible for extrinsic motivation to be self-regulated (Ryan & Deci, 2000).

FIT-Choice framework (Watt, Richardson & Smith, 2017).

People are attracted to join teaching because of a number dimensions including socio-cultural, parameters set by the government and community, salary and incentives, easier to enter than other university degrees plus charges lower tuition, and the possibility of side tracking (another career or running a small business such as tutoring students). There is complex interaction of factors embedded within communities and cultural expectations. The multidimensional nature of teacher motivation is captured in FIT-Choice framework (Watt et al., 2017).

Factors Influencing Teaching Choice (FIT-Choice) project investigated motivations for selecting teaching career, teaching self-efficacy and experiences of beginning teachers (Watt & Richardson, 2007). The FIT-Choice framework originated from two questions: why well-paid people left their jobs in search of teaching, and what motivates people to choose teaching? (Watt & Richardson, 2007). The collaborative research initially involved two nations; USA and Australia, seeking common values, beliefs, and expectancies among career switchers and those seeking teaching as first career choice (Watt & Richardson, 2012). The FIT-Choice framework provides an interactive dialogue of motivational theories e.g., Expectancy-Value Theory (EVT) and occupational choice (Watt & Richardson, 2012) and resulted in development of the FIT-Choice scale. Of late, the FIT-Choice scale has been widely used in Western, Eastern countries and Asian countries e.g., motives of becoming a teacher in a Swedish University (Jungert et al., 2014); and gender differences in STEM participation (Watt et al., 2013); and how FIT-Choice factors map onto expectancy-value theory (Pommock et al., 2018).

Motivations to join teaching career can be grouped into extrinsic, altruistic, personally utilitarian, intrinsic, and ability-related beliefs (Watt & Richardson, 2012). The FIT-Choice framework has grouped the motivations into social influences, task demand and return, personal and social utility values, and feedback career. While these constructs are not an exhaustive list of what motivates people to join teaching, the FIT-Choice Framework provides a well-grounded starting point to study teacher motivations in different settings and contexts.

Interventions to attract teachers

Four strategies are examined here. First, the provision of full tuition scholarship as a way to attract teachers e.g., North Carolina Teaching Fellows Program in the United States for a 4-year

commitment to teach in the state's public schools. A variation of the strategy is forgiveness programmes that cover all tuition fees or large percentage of tuition have been suggested (Podolsky et al., 2016). The strategy is dependent on the availability of funding throughout the programme. In the case of North Carolina Teaching Fellows Program in the United States, the intervention strategy was successful until there was a 'political decision to cut spending on public education'. Financial incentives seem to work in attracting teachers but not effective in retaining them. Thus, other strategies are required to augment financial incentives.

A second strategy is to commit recipient to teach with reasonable financial consequences if they do not fulfil the commitment (Podolsky et al., 2016). On receiving full tuition scholarship, recipient may be asked to commit teaching for a period similar in duration to the teacher education programme, failure which the sponsor recovers the sponsorship.

Third, adopting local pathways into the profession (Podolsky et al., 2016). In 'Grow Your Teacher' (Podolsky et al., 2016) schools recruit from the local community with the hope that potential candidates in remote geographical areas, join ITT working as temporary teachers in their home areas. This is similar to the School Direct route. However, such temporary solutions face several challenges, one of which is that joining teaching is seen as a way of urban migration. Some countries have tried a national teaching service without success (Hazell, 2016; See et al., 2020).

Fourth, offering career advancement opportunities that provide increased responsibility and recognition (Podolsky et al., 2016) can be used to attract people into teaching. The accomplished expert can serve as mentors for newly qualified teachers.

While some of these strategies may have been used in countries like Zimbabwe, there is neither evidence in literature to show deliberate efforts of assessment of the effectiveness of such strategies nor studies reporting what prospective teachers want in place to make teaching attractive. Therefore, the current study seeks views of in-service teachers and use gathered information to fill the gap.

Main research questions

What motivated in-service science and mathematics (STEM) practitioners to join teaching and to participate in continuous professional development?

Sub-research questions

- What factors influence individuals to choose teaching as a career?
- What perceptions do beneficiaries have about the Teacher Capacity Development programme in HEIs?
- How can HEIs increase enrolments of in-service STEM teachers?

RESEARCH METHODOLOGY

Research paradigm

The study was informed by pragmatism because we sought motives using closed-ended items, something requiring describing and summarising overall agreement or disagreements to the statements using means, as well as free responses to open-ended items on perceptions toward teaching as a career, which could be established through interpretation of the in-service STEM teachers' stories.

Research approach

The study used a mixed method approach to explore motivations to join teaching and participate in continuous professional development. Williams and Pollard (2016) used a mixed approach

to study the customer journey to initial teacher training. Their study gathered quantitative data via an online survey to recruit individuals for a qualitative phase of the research. In the qualitative phase, the researchers gathered in-depth information about experiences of individuals through interviews and focus group discussion. This study is different from William and Pollard (2016) in that both quantitative and qualitative data were gathered concurrently, using questionnaire made up of both closed-ended items and open-ended items.

Case study design and description of the case

A case study design was used. Participants were students enrolled in a Teacher Capacity Development programme at one university, herein referred to as BUSE. The TCD programme was a 2-years intervention programme sponsored by the government of Zimbabwe and UNICEF for teacher capacity development of STEM teachers. The STEM teachers were certificate/diploma holders who had been teaching science and mathematics for 5 years or more, and at the end of the programme would be awarded Bachelor of Science Honours Degree. This programme was done through Block-Release that blended face-to-face and virtual learning. During the school term, the in-service STEM teachers were learning online as they worked as fulltime teachers and came to university during school holiday for face-to-face tuition lasting 2 weeks each session.

Population of the study

The population of the study was 356 students enrolled in Teacher Capacity Development programme at BUSE in the academic year 2022-2023. These students were in their first year.

Sampling

A sample of 78 teachers on the TCD programme was chosen using convenient sampling technique. Researchers invited students to complete google forms through WhatsApp platform. Students who managed to complete the questionnaire made up the sample. The distribution of respondents by gender was in favour of females (43 or 56%). Males who responded were 34 (or 44%). In terms of age eleven participants were aged 30 years and below, 42 (or 55%) were aged 31-40 years and 24 (31%) were over 40 years old. Among the participants 38 were O-Level holders, 38 had attempted A-Level and one had a degree qualification. All had diplomas in education. Distribution of participants by work experience was 17 had been teaching for 5 years or less, 31 had been working for 6-10 years and 19 had over 10 years teaching experience. The majority 60 (78%) had been in the teaching field for more than 5 years. The 22% either just met the minimum requirement of 5 years teaching or squeezed in because they were a few months shy of 5 years work experience. A graph taken from google form might simplify the presentation here.

The TCD programme at BUSE was aimed at capacitating secondary teachers. However, biodata of participants shows that 6 (8%) had trained to teach at primary school. Distribution of participants by areas of specialism, being subjects they were studying at BUSE, was Biology (20 or 26%), Chemistry (21 or 27%), Mathematics (25 or 33%) and Physics (11 or 14%). All areas of specialism were represented.

Measuring motivations

West and Uhlenberg (1970), in the paper *Motivation: The Desire to learn* discuss, five groups of techniques applied to achievement motivation namely; 'production' measures, self-report instruments, observer ratings, 'projective' techniques, and objective tests. Though different from motives to join a career, a lot can be borrowed from techniques to assess achievement motivation. 'Production' measures of motivation are premised on overt behaviours that are assumed to be outcomes of internal motivation (West & Uhlenberg, 1970). Obtaining a high

score on a measure of motivation is thus assumed to lead to high productivity. Self-report instruments include questionnaires, rating scales and checklists. In our current study we adopted self-report instruments and used questionnaire on the premise that questionnaires are the simplest and most direct means of measuring motivation. The advantages of using self-report instruments, like questionnaires, include easy to construct, administer, score, and interpret (West & Uhlenberg, 1970). The main disadvantage is that self-report instruments rely on the respondent's self-understanding and cooperation. Intent and positive responses are often obvious and validity of instrument is threatened by knowledge of the socially desirable response (West & Uhlenberg, 1970). Self-report instruments may need to be supported by other means of assessment to overcome bias due to social desirability. We opted to use a questionnaire.

Data collection instrument

The questionnaire had 5 sections seeking demographic data, pull factors into Initial Teacher Training (ITT), push factors against ITT, pull factors into Teacher Capacity Development (TCD) programme, and push factors against TCD. At the end of each section, participants had to respond to open ended questions. Thus, quantitative and qualitative data were concurrently collected. Quantitative data gathered was used to determine in-service teacher's motives towards joining teaching service and CPD. Qualitative data was used to generate themes to explain perceptions of participants on how the higher education institution can attract more students.

FINDINGS

We report findings under the following themes: professional development goals, RQ1 What factors influence individuals to choose teaching as a career? (Pull and push factors for initial teacher training), RQ2 What perceptions do beneficiaries have about the Teacher Capacity Development programme in HEIs? (Pull and push factors for TCD), RQ3 How can HEIs increase enrolments or trainee teachers? (Possible ways of attracting students to join teaching at BUSE).

In-service teachers' professional goals

The study sought to find out respondents' professional development goals. The item seeking the data was open ended. The responses revealed four categories of goals: job change within teaching, academic advancement, competence and other.

What are your professional development goals?

Table 1 shows that most participants aspire to further their studies (advancement), and improve their competences. One respondent had this to say: "*I wish to continue with education up to PhD level so that I can also become a lecturer at tertiary level*". The same sentiment was expressed differently by other respondents e.g., "*Upgrading myself so that I can teach at a higher level of education*".

Respondents wanted to improve their competences as expressed: "*Acquire a PhD in Mathematics and contribute immensely in the writing of Mathematics textbooks*". Similarly "*To be a competent and well knowledgeable physics teacher*".

These two aspirations, advancement and improved competence, were closely related. An advancement in education led to acquisition of MScEd/PhD qualifications, and improved competences enables job change to becoming Advanced-Level teachers, administrators, lecturers and/or academics. Surprisingly, few individuals aspired to get higher earnings. However, we can presume that higher earnings are embedded in advancement and improved

professional competence. Participation in the TCD programme was targeted at professional development and as a vehicle for advancement. These two reasons can be viewed as one goal.

TABLE 1

Participants' professional development goals (N=77)

PD goal	f (%)	Examples
Competence	32 (41.6%)	Lecturer, administrator, teaching up to A-Level
Advancement	40 (51.9%)	MScEd/PhD
Other	5 (6.5%)	Higher pay, meet and connect
Total	**77 (100%)**	

RQ1. What factors influence individuals to choose teaching as a career?

In order to answer RQ1 researchers collected data on pull and push factors in Initial Teacher Training. The data is presented and discussed below.

Pull factors in Initial Teacher Training: Social, Extrinsic, Intrinsic and Altruistic Motives

TABLE 2.1

Social (influence from parents, siblings, other relatives, school teacher, counselling and guidance, and social media) (N=77)

Social factor	Mean	SD
Parents	2.29	1.22
Siblings	2.42	1.27
Other relatives	2.56	1.30
School Teacher	2.17	1.21
Counsellor and Guider	2.43	1.35
Media	2.17	1.10
Social pull	**2.39**	**.67**

Data in Table 2.1 above summaries responses when in-service teachers were asked to show agreement or disagreement of social influence from parents, siblings, other relatives, school teacher, counsellor and social media on a continuum of 1 (strongly disagree) to 5 (strongly agree). The mean scores in Table 2 above were 2.5 and less. Thus, we rounded down the scores to 2, and we interpreted this to mean that the in-service teachers were not influenced to join teaching by other people.

TABLE 2.2

Extrinsic pull factors (income, security, stepping stone, flexibility, holidays, good pay, and opportunity to pursue other interests) (N=77)

Extrinsic Factor	Mean	SD
Income	3.43	1.31
Security	3.44	1.28
Stepping stone	3.47	1.25
Flexibility	3.42	1.28
Holidays	3.12	1.27
Good pay	2.10	0.97
Can Pursue Other Interests	3.96	0.97
Extrinsic pull	**3.27**	**0.83**

As shown in Table 2.2 the following factors made up the extrinsic motivation construct; income, security, stepping stone, flexibility, holidays, good pay and simultaneously pursuing other interests. One factor, 'simultaneously pursuing other interests', was outstanding with a mean item score of 3.96 rounded up to 4. They believed that working as a teacher allows one to pursue other interests.

A mean score for the extrinsic pull construct was 3.27 suggesting that participants' views were neutral, not sure whether they were attracted to teaching by extrinsic factors. Thus, extrinsic factors are not attracting prospective candidates into teaching. This finding would seem to contradict literature reporting that in developing nations extrinsic motives were more important than intrinsic and altruistic factors (e.g., Bastick, 2000; Mwamweda, 2010). In 2022, when the study was conducted, Zimbabwe was ranked as 17th poorest nation as measured by gross domestic product (GDP) based on purchasing-power-parity (PPP) per capita (Ventura, 2021). Thus, extrinsic factors e.g., income were not attractive in a country experiencing high inflation and eroded purchasing power. According to Vroom's expectancy theory (Eccles, 2009), people are motivated by outcomes. If the expectation was income, and in-service teachers perceived that attaining a teaching qualification or higher did not lead to an affluent life they were likely to find teaching unattractive. In our findings *valence* is low, *expectancy* is low and the product of the two factors is low *motivation* (see Figure 2). According to Vroom's theory, *instrumentality* is the perception that effort will lead to the required outcome. In our context *instrumentality* was threatened by the stressed economy.

FIGURE 2

Applying Expectancy Theory Formula

Low Motivation = **Low** Valence x **Low** Expectancy

Expectancy Valence Theory

TABLE 2.3

Intrinsic pull factors (interest in subject, academic and high prestige) (N=77)

Intrinsic Factor	Mean	SD
Interest in subject	4.09	0.89
Interest in academic advancement	4.26	0.83
High prestige	2.83	1.12
Intrinsic pull	**3.73**	**0.74**

The mean score of 4 for intrinsic pull suggests that participants joined teaching because of intrinsic factors, particularly interest in the subject and wanting to advance their academic achievement. The same participants were neutral to the idea that teaching had a high prestige status. Elsewhere intrinsic factors were reported to be important in attracting people into teaching profession (Barmby, 2006; Bruinsma & Jansen, 2010; Krecic & Grmek, 2005).

Data in Table 2.4, showing a mean score of 4, suggests that participants agreed that they were attracted into teaching by altruistic factors. They were motivated by interest in children and adolescents, and an opportunity to make a contribution to the development of society. Thus, they believed teaching was a valuable service. The motive to impart knowledge to others was consistent with their interest in their subjects of specialism. Our findings suggests that intrinsic and altruistic factors were more important than extrinsic factors in attracting teachers in poor nations like Zimbabwe, contradicting what was reported in other research literature (e.g., Bastick, 2000; Mwamweda, 2010).

TABLE 2.4

Altruistic pull factors (interest in children/adolescents, developing citizens, impart knowledge, valuable service) (N=77)

Altruistic Factor	Mean	SD
Interest in children/Adolescents	3.77	1.05
Developing citizens	3.99	0.92
Impart knowledge	4.27	0.87
Valuable service	4.03	1.03
Altruistic pull	**4.09**	**0.85**

TABLE 2.5

Pull factors (N=77)

Pull Factors	Mean	Standard Deviation
Social influence	2.39	0.67
Extrinsic	3.27	0.83
Intrinsic	3.73	0.74
Altruistic	4.09	0.85

Further, respondents were asked to describe in their own words why teaching was attractive. The responses were grouped into extrinsic, intrinsic and altruistic reasons as shown in Table 2.6 below.

TABLE 2.6

Why teaching was attractive (N=77)

Why teaching was attractive	Frequency	Percentage
Extrinsic reasons	36	46.7%
Intrinsic reasons	7	9.1%
Altruistic reasons	18	23.4%
Not attractive	16	20.8%
Total	**77**	**100.0%**

Free responses appear to contradict with statements describing extrinsic motivations. However, close scrutiny shows that TCD participants in a free response item gave descriptions that confirm extrinsic motivations as less important than intrinsic and altruistic factors. One response was: "*It provides job security in a highly unstable environment regardless of the low remuneration [Extrinsic] and provides intrinsic satisfaction to those genuinely interested in the profession [Intrinsic]*".

We considered both *job security* and *(low) remuneration* to be extrinsic factors. However, at the time of the study the economic environment was highly stressed characterized by high inflation and eroded earning. Such a negative factor obviously would not attract people into the teaching profession. While the respondent acknowledged the next extrinsic factors, they were quick to point out that teaching *provides intrinsic satisfaction,* that it is fulfilling to some people. Similarly, another participant had this to say: "*Nowadays, people have nothing to do so instead of staying at home they join to find something to occupy them and earn money [No choice]. In the past it was out of interest, intrinsic motivation*".

Push factors against Initial Teacher Training

Table 3.1 above summaries extent to which respondents agreed with statements describing push factors against Initial Teacher Training on a 5-point Likert scale. A mean score of 3 suggests

neutral view. Out of the 10 items participants agreed that *job insecurity* and *low salary* pushed people away from teaching. Both *job insecurity* and *low salary* are extrinsic factors. Thus, in Zimbabwe extrinsic factors are powerful in attracting people into choosing a career. If, we reverse the statements describing *job insecurity* and *low salary* to job security and high salary respondents would find teaching attractive.

TABLE 3.1

Push factors against Initial Teacher Training (why teaching is not attractive) (N=77)

Push Factor	Mean	SD
Job insecurity	2.83	1.16
Low salary	3.94	1.21
Low prestige	3.53	1.19
Teacher over supply	3.06	1.04
Over supply desirable locations	3.23	1.10
Difficulty Working Conditions	3.31	1.15
Discipline problems	3.13	1.06
Overworked – Burnout	3.51	1.19
Difficulty Parents/ Community	3.23	1.06
Difficulty finding placement	3.74	0.97
Motive push	3.35	0.72

Further, respondents were asked to say in their own words why teaching was not a popular career in Zimbabwe. Responses were grouped into 3 categories; extrinsic reasons, other reasons and belief that teaching was still attractive (no answer).

TABLE 3.2

Why was teaching not popular (N=77)

Why teaching was not popular	Frequency	Percentage
Extrinsic (low pay)	63	81.8%
Intrinsic (belief that there was lack of respect)	7	9.1%
Other	5	6.5%
Still attractive	2	2.6%
Total	**77**	**100.0%**

When participants were asked to describe in their own words why teaching was not popular, the commonly stated reasons were extrinsic in nature, particularly low pay. For example, one respondent wrote: "*Because of current situation where teachers are not earning salaries which make them proud, rather shy, it becomes a mockery (haashande ndi teacher)*". The message in the response suggests that the teacher's salary was so low that people thought it was a mockery and as good as not working at all. The metaphor 'ndi teacher' translated 'he/she is a teacher' was used to mean unemployed.

Other responses go beyond low salaries e.g., "*The salary leaves a lot to be desired, postings may be in very remote undesirable areas and sometimes the workload is too much*". Besides low salaries respondent believed that the possibility of being assigned to work in *remote undesirable areas* and awareness that *sometimes the workload is too much* pushed prospective candidates away from Teacher Training.

Discussion

With reference to Vroom's expectancy theory our findings seem to suggest that in-service teachers were attracted to staff development programmes to increase their teaching competences, to attain higher qualifications and get promoted.

RQ2. What perceptions do beneficiaries have about the Teacher Capacity Development programme in HEIs?

Researchers sought participants' perceptions of Teacher Capacity development. The data collected included pull and push factors of the programme as presented below.

Push factors for Teacher Capacity Development programme

Messages emerging from sentiments about motivations to join teaching career are that extrinsic factors were important to attract prospective candidates into teaching. In the negative the same factors were pushing away candidates from teaching. Most respondents believed intrinsic and altruistic, though not as important as extrinsic could be used to explain why they were still teaching. Now considering that TCD programme was attracting a large number of in-service teachers we sought to find out the push factors. Respondents' level of agreement with statement describing pull factors are summarised in Table 4.1 below 2.

TABLE 4.1

Pull Factors TCD (N=77)

Pull Factor TCD	Mean	SD
Tuition fees scholarship	4.81	0.40
Free accommodation	4.43	0.94
Free meals	4.40	1.02
Free local transport	2.51	1.37
BUSE first choice	4.45	0.87
Only place for STEM	4.08	1.24
Specialism courses	4.45	0.68
EF courses	4.12	1.10
ET courses	4.31	0.89
University wide courses	4.13	0.88
Face-to-face tuition	4.29	0.69
Online tuition	3.92	0.96
Blended tuition	4.26	0.73
TCD pull	**4.19**	**0.54**

Responses to the statement describing push factors (See Table 4.1 above) were outstanding with a mean item score of 4.81 and suggested that participants were attracted to BUSE by UNICEF scholarship. When rounded up to 5, we deduce that availability of a scholarship attracted participants to BUSE. The TCD scholarship was available to many state universities in Zimbabwe. BUSE enrolled candidates in science education. Thus, the response may be suggesting that besides the sponsorship being available to many state universities, coming to BUSE was determined more by specialism than sponsorship. The TCD programme provide the needed extrinsic motivation.

Respondents were asked to describe in their own words what attracted them to enrol at BUSE. Table 4.2 summarises the responses.

TABLE 4.2
What attracted you to BUSE? (N=77)

What attracted you to BUSE?	Frequency	Percentage
Sponsorship	7	9.1%
Quality teaching and learning	29	37.7%
Courses offered (No choice)	36	46.7%
Convenience	5	6.5%
Total	**77**	**100.0%**

In response to the open-ended question, most participants were attracted to BUSE by the courses on offer. The decision to select BUSE was based on that it was purportedly the only HEI institution for science education (for in-service teachers who wanted to specialize in biology, chemistry, mathematics and physics). We interpreted this to mean *no choice*. For example, one respondent wrote '*it was the only institution offering Mathematics*' [no choice]. However, the respondent failed to appreciate that there was another institution offering a similar qualification under the same programme.

An in-service respondent who had been at BUSE previously had this to say: "*Science education is good. I tasted BUSE when doing diploma in science education*".

Evidence of quality education was supported by other respondents. One of whom who had this to say: "*It was the only institution that offered Science for the TCD program but I also wanted to experience it for myself as I had heard it is a good institution for science subjects*" and another was more direct to say "*BUSE students are well recommended in most schools*".

TABLE 5
Why TCD is popular (N=77)

Why TCD attractive	Frequency	Percentage
Sponsorship	47	61.0%
Quality teaching and learning	5	6.5%
Courses offered (No choice)	13	16.9%
Convenience	7	9.1%
Advertising	5	6.5%
Total	**77**	**100.0%**

According to in-service teachers TCD, at BUSE or elsewhere, was popular because of the sponsorship. Participants were fully funded. Further, the block mode meant that it was a convenient programme where in-service teachers continued to receive their salaries (they did not have to leave employment) while enrolled at BUSE (attending lectures during school holidays time). Two exemplars of what respondents wrote are: "*The courses being offered and just because it came as a relief to most of teachers who cannot pay for their own education due to poor salaries from the employer and it is enrolling everyone who is eligible*", "*Because it is fully funded otherwise many teachers would not have been able to afford it as they have children that are of school-going age, so the financial responsibility would have been too much*".

Besides UNICEF sponsorship BUSE had several features that could be exploited to attract students, for example, offering unique science education courses.

Push Factors against TCD

We sought to find out push factors against TCD programme. Respondents were asked to express their level of agreement with statements describing push factors. Table 6 below summaries their responses.

TABLE 6
Why is TCD not popular? (N=77)

Push Factor TCD	Mean	SD
Withholding certificate	3.55	1.46
Not funding sup/repeats	3.56	1.42
Leave without pay	3.42	1.42
Leaving on finishing TCD	2.22	1.10
TCD push	3.35	0.97

Data in Table 6 suggest that in-service teachers had neutral views (mean score of 3) on conditions set for the sponsorship. Participants who failed to meet their obligations in the contract were not funded for repeating a course, for those who failed to complete the study programme the time spent at university was treated as leave without pay and those who quit teaching on finishing TCD were asked to pay back sponsorship. The mixed views would seem to suggest that some participants saw these terms as fair, while others wanted 'free handouts' – sponsorship without paying back through teaching for a duration equal to the sponsorship period.

Discussion

In-service teachers wanted to develop professionally, attain higher qualifications and increase their chances of job change and migration. We interpreted all these outcomes to be the *valence* in Vroom's Expectancy Theory. The in-service teachers believed that provision of sponsorship by UNICEF and BUSE's block release mode were enablers (*instrumentality)* in enrolment and attainment of teaching degree. Our findings were consistent with motivational theories (Eccles, 2009; Fernet et al., 2008; See & Gorard, 2020).

RQ3. How can HEIs increase enrolments of trainee teachers?

To answer RQ3 we sought participants' views of making BUSE their first choice, and ways they thought could be used to make the university attractive. In response 62 (three-quarters) in-service teachers would always make BUSE their first choice if able to fund self. This is encouraging. However, a sizeable 15 (a quarter) were likely to make other universities their first choice. In order to make BUSE attractive to the quarter, who like other institutions, the university must attend to the needs of this clientele.

One possible way of making BUSE attractive is to make tuition fees affordable or to offer scholarships. In fact, 42 (just over half responses) suggested that reducing fees can make BUSE attractive to potential students, and a quarter (19) were concerned with affordable accommodation. These two suggestions came from three quarters of the participants. While offering subsidies has potential to increase intakes, reducing fees comes at a cost which should be borne by somebody unless the fees charged are not a true reflection of the services rendered. Twenty-one percent (16) of the participants would be attracted by advertising and other factors like student rights, and increased options of programmes.

If BUSE was to reduce fees, many students will be attracted to the university. Second to reducing fees, students can be attracted if offered accommodation by the university. BUSE can increase enrolments through needs analysis; finding out what motivates potential candidates (perceived outcomes or *valence*), and what may hinder enrolment (perceived threats to attainment of outcomes). By attending to the perceived threats to attainment of outcomes e.g., high fees, BUSE will promote *instrumentality*, belief that effort with lead to attainment of outcomes. The provision of full tuition has been used elsewhere with success, e.g., North Carolina Teaching Fellows Program. Other studies reporting interventions to attract teachers include Hazzell (2016) and Podolsky et al. (2016). However, such interventions would require

local adjustments if they are to be successful. Sponsorship attends to the aspect of affordability, and there remains challenges posed by a stressed economy and perception that teaching does not pay well relative to other jobs. We recommend adoption of international standards, and assurance that qualifications attained are recognised the world over.

CONCLUSION

We drew up three conclusions. First, we concluded that in-service teachers had two closely related aspirations; advancement and improved competences. They wanted to attain higher qualifications and increase chances for job change and higher earnings. Second, we concluded that in-service teachers were neither attracted to teaching by social influence nor extrinsic factors in impoverished contexts like Zimbabwe when the study was conducted. Instead, they were motivated to teaching career by intrinsic and altruistic factors. Third, we concluded that TCD programme was attractive because of sponsorship and specialism areas offered by the institution. We interpreted this to mean 'no choice' or limited options. Thus, we recommend BUSE to find ways of either reducing fees or finding sponsorship and provision of university accommodation as ways to increase enrolments. Alternatively, the university can design unique programmes attractive to potential candidates, who in turn will be prepared to pay the fees charged.

RECOMMENDATIONS

Thus, we recommend universities in Zimbabwe to find ways of reducing fees (or sponsorship) and provision of university accommodation as ways to increase enrolments. The university is heavily dependent on government grants. I think it should be the role of the government to subsidize teacher training. Further research is recommended using a larger population and sample size.

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