



# **Effectiveness of two e-learning modalities for school leader professional development on effective school leadership in Rwanda**

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*Carla Haelermans & Raadhika Paul*

*Research Centre for Education and the Labour Market (ROA)*

*Maastricht University*

*Sofie Cabus, Ilse Flink, Jocelyne Kirezi & Jef Peeraer*

*VVOB – education for development*



**Maastricht University**



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## Summary

This report presents a baseline study for the Randomized Controlled Trial which is designed to evaluate the effectiveness of two e-learning modalities for improving school leaders' leadership skills in Rwandan secondary schools. Rwanda experiences a wide range of educational challenges in terms of financial constraints, absence of proper school infrastructure, abrupt change in language of instructions from Kinyarwanda to English in primary education, lack of availability of qualified teachers, high pupil-teacher ratio and increasing dropout rates among students, particularly in case of secondary education. According to the MINEDUC report 2019 presenting Rwandan Educational statistics, the net enrolment rate of students in secondary education has declined from 32.9 percent in 2016 to 24.5 percent in 2019. The dropout rates have increased from 4.5 percent in 2015/16 to 8.2 percent in 2018/19. Furthermore, the percentage of qualified staff stand at 79.2 % in the secondary schools. Since the school leaders are often regarded as the main actors in improving educational quality of schools, a Continuous Professional Development (CPD) programme has been developed to improve the school leaders' (deputy headteachers and headteachers) leadership skills in Rwandan secondary schools. The CPD programme is set up by VVOB in collaboration with the Rwandan Basic Education Board (REB) and the University of Rwanda-College of Education (UR-CE), funded by the Mastercard Foundation (McF).

The CPD training programme is a one-year long programme and was supposed to be delivered as a combination of both face-to-face and online learning medium. However, as of 2020, as a result of the Covid-19 pandemic, the programme is offered fully online through Moodle and only conducts the examinations offline. It consists of 40 credits which are distributed over four modules: (1) school leadership and working with parents and the local community; (2) strategic direction for the school; (3) managing the school as an organization; and (4) leading teaching & leading learning. In the randomized controlled trial, one modality is the so-called trainer-led group where trainees were guided by a UR-CE trainer. The other modality is the so-called peer-led group where the trainees were guided through different activities by their peers, with only occasional involvement of a trainer.

The main research questions concerning the CPD programme are: Can the peer-led group perform equally well as the trainer-led group in terms of school leadership styles, standards, skills and competences, and dropout from and the examination results on the CPD programme? Furthermore, is the trainer-led programme more cost-effective than the peer-led programme?

To answer these questions, the baseline study includes on a total of 443 (deputy) headteachers (D)HTs from 381 schools in 18 districts and 792 teachers from these schools are surveyed for this study. Randomization into one of the two modalities took place at the sector level, 226 (D)HTs were assigned to the trainer-led group and 217 (D)HTs were assigned to a peer-led group.

As the starting point of the intervention, this baseline report compares characteristics (such as gender, age, work experience, educational qualification, job satisfaction, awareness of the CPD programme and school characteristics (relating to location, infrastructure, number of students, etc.) of (D)HTs from the trainer-led group and the peer-led group of the (D)HTs. To compare the two groups, Chi-square tests and t-tests are used. The results indicate that the two groups are similar with respect to the variables mentioned previously. Furthermore, the baseline report also analyzes the reliability of the questionnaires provided to the (D)HTs using Cronbach's alpha. The questionnaires for the (D)HTs focused on the following aspects: (1) Barriers to e-learning (2) Job Satisfaction (3) Work tasks motivation (4) General self-efficacy (5) Motivation to learn (6) Instructional leadership (7) Transformational leadership (8) Leadership overall (9) Trust in school leaders (10) Distributed leadership. The reliability tests show that most overall scales work quite well (except Trust in school leaders), some subscales do not work that well, therefore we only use the overall scales in our study.

T-test results indicate that even though the (D)HTs are on average similar across the trainer-led group and the peer-led group pre-intervention, differences do exist in their perceptions on e-learning barriers (especially in the perception on dispositional barrier), job satisfaction as well as learning motivation.

Correspondingly, the report also collects information on the demographic characteristics (such as age, gender, educational qualification, work experience) and other variables (such as awareness of the CPD programme, awareness of the activities, satisfaction with (D)HTs, subjects taught in schools, means of transport to school, etc.) from the teachers involved in the two groups of schools. The results from T-statistic and Chi-squared statistics indicate that the teachers in both the groups are similar in terms of the demographic characteristics and also the other characteristics mentioned previously. Furthermore, they were provided questionnaires to study their perception about their (D)HTs in terms of (1) Instructional leadership (2) Transformational leadership (3) Leadership overall (4) Trust in school leaders (5) Distributed leadership. T-test results indicate that there are no significant differences in the teachers' perception about the (D)HTs between the two groups. Furthermore, the reliability tests show that the overall scales of the teachers' questionnaire perform well.

Overall, the randomization of the (D)HTs into a trainer-led group and the peer-led group has worked quite well and the groups are comparable.

## 1. Introduction

In less developed countries, more than one out of every four children entering compulsory education leaves school early without a secondary diploma. Sabates et al. (2010) through extensive literature survey highlighted some of the most predominant factors (both from demand side and supply side) influencing the increasing dropout rates in developing countries, particularly focusing on Africa. The most important factors hindering educational completion in the less developed countries include inferior educational quality stemming from overcrowded classrooms, presence of underqualified teachers, insufficient learning materials and inappropriate language of instruction. School distance is also an important factor to influence students' decision to continue school. Apart from school related factors, socioeconomic factors like poverty, malnutrition and family's perception about the importance of secondary education are also important factors influencing the dropout rates of the students. Often, the students from poor family background perceive greater opportunity cost of going to schools, especially at higher grades. Hence, children at higher grades often opt for employment to earn for family instead of completing their education. Furthermore, grade repetition or enrolling in a lower grade at a higher age often demotivates the students to continue with school education. Particularly for girls, school safety and teenage pregnancy play crucial role in influencing the decision to drop out from the schools. Mzuza, Yudong and Kapute (2014) focusing on primary school girls in Malawi recognized that absence of quality education (in presence of overcrowded classrooms, a high pupil-teacher ratio and lack of access to proper learning materials) also contribute to reduced passing rate among students; such reduced passing rates demotivates the girls to continue pursuing education and resort to teenage marriages or pregnancies. Adam, Adom and Bediako (2016) further confirm in the context of the schools in rural Ghana that poverty and lack of motivation emerge as the most important reasons behind students' decision to drop out from the primary schools. As observed by the United Nations (United Nations, 2014), children are increasingly obtaining primary education, however, still a substantial number of students drop out of secondary education. In Rwanda, these numbers are worrisome, too. On average, in 2018-19, 72.2 percent of students in Rwanda effectively make the transition from primary to secondary education (Rwandan Statistical Yearbook, 2019). Once in secondary education, 8.2 percent of students leave education early. Further, the dropout rate in lower secondary education is 9.1 percent which is higher than in upper secondary education (5.1 percent) in 2018-19.

Tackling poor learning outcomes, conflicts, and/or negative perceptions on learning organizations as a whole, requires a whole school approach.

*"Whole-school approaches' involve schools (and/or institutions) tackling a range of complex and diverse issues such as school governance, pedagogy, resource consumption, community outreach, curriculum development, and landscaping that will assist schools to become more sustainable (Ferreira et al. 2006, p.16)."*

There is a particularly important role for school leaders in encompassing school-based problems with the ambition to underpin the whole school approach (Robinson et al, 2008; Leithwood et al, 2008). Ideally, school leaders support teaching and learning, i.e. they promote the school as a learning organization and engage teachers in continuous professional development in general and in induction of new teachers in particular. Furthermore, it is argued that school leaders, who support, evaluate and develop teacher quality also have a high impact on learning outcomes.

While there is quite some knowledge-based on effective school leadership (Robinson et al, 2008; Leithwood et al, 2008), there is still little (experimental) evidence on the direct and indirect *impacts* of effective school leadership on the entire school, in general, and quality of teaching and students' achievement, in particular. The evidence-based knowledge on the followed trajectories from increasing

school leadership skills/competencies to students' learning outcomes is scarce (Glewwe and Muralidharan, 2016). School leader training can contribute to the professional development of school leaders, to increase effective school leadership, which in turn is expected to have an influence on both teachers and students. However, there are still a lot of questions with regard to the most cost-effective way of training school leaders.

This report will focus on the training of school leaders in Rwanda, that are organized as part of the programme called "Leading, Teaching and Learning Together" in secondary education, which is set up by VVOB in partnership with the Rwanda Basic Education Board (REB) and the University of Rwanda-College of Education (UR-CE) and with funding from the Mastercard Foundation (McF). The Leading, Teaching and Learning Together (LT LT) in secondary education programme runs from 2018 to 2021, targeting secondary schools in 14 districts in Rwanda. The short-term objective of the programme is to strengthen the competences of key education actors through improved CPD support systems for these actors. Actors that are directly targeted by the programme are: Sector Education Officers (SEOs), School leaders (head teachers and deputy head teachers), School Based Mentors (SBMs) and school subject leaders (SSLs) in Science, Technology, Engineering and Mathematics (STEM) (VVOB, 2019). The LT LT in secondary education programme is currently preparing for a scale-up to 16 additional districts.

With respect to school leaders, there are at least three trajectories relevant for the Rwandan school context: (1) continuous professional development for factual skills development on effective school leadership; (2) the translation of improved leadership skills to school-based practice through the support of Professional Learning Communities; and (3) enhanced teacher effectiveness and support and its impact on student achievement. These three ingredients are included in the CPD programme on effective school leadership in basic education in Rwanda.

The CPD programme consists of the following features: first, head teachers (HT) and deputy head teachers (DHT) learn about effective leadership in a CPD diploma programme which is accredited by the University of Rwanda-College of Education (UR-CE). During the diploma programme, various practical assignments and coaching by UR-CE and external trainers allow HTs and DHTs to translate the knowledge on effective leadership into practice and apply it in their school. Second, Professional Learning Communities (PLC) will be in place to further support the HT and DHT in how to apply the theoretical knowledge in practice, especially after the diploma programme has been completed. And third, effective leadership of the HT and DHT will have to translate into HT and DHT better supporting, supervising and motivating teachers, and that, subsequently, should lead to higher student performance through higher teacher motivation and performance.

We evaluate the online version of this CPD programme for the third cohort to which it is delivered (there were two previous cohorts that received the CPD programme in its originally face-to-face format) on effective school leadership by using looking at its (cost-) effectiveness. This report is, in fact, the baseline report to that particular evaluation that will take place in the academic year 2020-2021. It presents an introduction to the context of Rwandan secondary education and a brief description of the scheduled evaluation of the CPD programme. Furthermore, this baseline report introduces the main measurement instrument, a structured questionnaire for school leaders and teachers that underlies the evaluation of non-cognitive outcomes, and the results of the pre-test of this questionnaire. Furthermore, we describe the samples of (D)HTs and teachers, and assess whether treatment and comparison group are comparable in observable characteristics. To conclude, we assess whether the pre-test outcomes are different between treatment and comparison group.

## 2. Literature on effective school leadership and training

### 2.1. Importance of school leaders and school leadership dimensions

A school's success is largely accountable from school leaders' proper leadership and management skills. School leaders for example hold the key for motivating teachers, improving the school's capacity and building favourable climate within schools - all of which contributes to improving educational quality (Pont et al., 2008). The Evidence Review Report 2020 focusing on the school leaders in the Global South analyzes the existing literature and observes that if the school leaders' score on management skills increases by one percent it can improve the students' performances by 10 percent. Furthermore, the impact of improved school leaders' performances on the student improvement is higher in adverse situations as for example infrastructural damage. In fact, strong leaders are much better in handling the distance learning tools and retaining students, which is of utmost importance during the pandemic. The report discusses a finding from Brazil where the management training program cost about 5 percent of public expenditure per student and increased the average learning of the students in secondary school by 30 percent. The report discusses a finding from Brazil where the management training program cost about 5 percent of public expenditure per student and increased the average learning of the students in secondary school by 30 percent. This highlights the importance of the leadership training programmes that hold the potential of improving the leadership skills of the aspiring (or existing) school leaders through training in administrative and management tasks. Furthermore, the training programmes enable leaders to incorporate leadership dimensions that include creating a vision for learning, instructional programme, curriculum programme, assessment programme, communities of learning, resource acquisition and use, organizational culture, and advocacy. Often these dimensions are inspired by different leadership patterns such as instructional leadership, transformational leadership, distributed leadership and situational leadership (Daniëls, Hondeghem and Dochy, 2019). Instructional leadership mostly focuses on setting school goals, curriculum implementation, inclusivity, quality of instruction and school environment; transformational leadership aims at promoting intrinsic motivation among the school members (particularly teachers); distributed leadership focuses on sharing responsibilities among teachers, parents and students instead of concentrating them only within the headteacher. Situational leadership refers to the ability of the school leader to adopt - a particular leadership pattern, depending on the context or problem experienced by the school ('Continuous Professional Development Programme in Effective School Leadership', 2019).

### 2.2. Role of school leadership in improving teachers' retention and students' performance

There are several descriptive studies in the literature that suggest how effective leadership can improve educational outcomes by improving teacher retention as well as by bringing about student improvement, either directly or indirectly. Salfi (2011), used a mixed-method approach focusing on Pakistan, Sindh province and demonstrated that often the school leaders from the successful schools are observed to exhibit efficient leadership and management skills; often, they share a common vision, trust, and involve stakeholders in decision making. They maintain a good working environment and practices distributing leadership, i.e. sharing the school responsibilities among other school members. Mancuso, Roberts and White (2010) conducted a logistic regression to study the determining factors for teacher turnover rate in the teachers in the Near East South Asia (NESA) international schools. Their analysis suggested that, besides satisfaction with salary, the teachers are less likely to move out of school if they are satisfied with the amount of input they provide into the decision-makings (which is mostly encouraged by the school leaders), and if they perceive their school leaders to be supportive. However, perceived supportiveness of principals is not a significant determinant of the teachers' turnover, as demonstrated by the analysis.

Furthermore, if school leaders implement certain leadership patterns, it can have a potential influence on improving the educational quality within their schools. Geijsel et al., (2003) used structural equation modelling (SEM) and showed that, in developed countries like Canada, transformational leadership motivates teachers to put forward more effort by influencing context beliefs and personal goals whereas in the Netherlands, transformational leadership impacts teachers' effort by influencing capacity beliefs. The importance of transformational leadership in improving educational outcomes is not confined solely within the developed countries; Tesfaw (2014) collected data from 320 government secondary schools in Ethiopia and used stepwise regression analysis to study the impact of transformational leadership behaviour of the school principals on the teachers' job satisfaction. The results suggest that transformational leadership contributes to greater job satisfaction, particularly through idealized influence and inspirational motivation. Similarly, Nguni, Sleegers and Denessen (2006) used regression analysis and showed that, in Tanzanian primary schools, transformational leadership promotes greater job satisfaction among the teachers than transactional leadership and hence improves the organizational commitment and organizational citizenship behaviour among the teachers. Transactional leadership mostly follows an incentive-based approach to promote extrinsic motivation among the school members ('Continuous Professional Development Programme in Effective School Leadership', 2019). With respect to distributed leadership, Chang (2011) conducted a study in the context of Taiwanese elementary schools using structural equation modelling (SEM) and demonstrated that if school leaders practice distributed leadership it is likely to enhance teachers' optimism which in turn will enhance students' performances in schools. Distributed leadership does not undermine the traditional role and responsibilities of the school leader; rather it focuses on efficient distribution of tasks across all the school members, thereby increasing their involvement within their profession. Thus, distributed leadership can enhance teachers' optimism and teaching quality which further translates into improved students' performances.

Furthermore, Heck and Hallinger, (2009) used multilevel latent change analysis to demonstrate how distributed leadership can enhance the elementary schools' academic capacity in the western states of the US. In fact, a school's academic capacity (characterized by increased availability of the opportunities that improve teaching and learning outcomes within schools) and ability of school leaders to practice strong leadership is often seen as mutually enforcing (Heck and Hallinger, 2010). This increased capacity resulting from the distributed leadership positively impact students' outcome, as demonstrated by increased improvement in the students' maths score over time. The indirect impact of school leaders' efficient leadership practices (often in distributed pattern) on improving students' outcome is also supported by a qualitative analysis by Penlington, Kington and Day (2008) based on the primary and secondary schools involved in "The Impact of School Leadership on Pupil Outcomes" project in England (Day et al., 2009). This project used a combination of qualitative and quantitative analysis to study the influence of head teachers' influence in sustaining the improvements in pupils' outcome focusing on the primary and secondary schools in England that had managed to demonstrate discernible improvement based on students' outcome within a short period of time (for instance, from 2003 to 2005).

### **2.3. Role of training programmes in improving school leaders' leadership skills**

Professional leadership training programmes often aim at improving leadership skills of the existing and aspiring school leaders and play pivotal role in improving other school quality. There are several studies that support that the training programmes help the school leaders improve their leadership skills, often in a discerning way.

To assess the effectiveness of a leadership programme on school leaders' leadership skills, Bush et al (2006) evaluated the effectiveness of the 'New Visions: Induction to Headship' programme which was

conducted by the National College for School Leadership in England. Based on the participating headteachers' responses in an interview, Bush et al (2006) found that over 80 percent of the cohorts were satisfied with the training programme in the sense that they got opportunity to work with other heads, solve problems with others and also received support from facilitators and consultant heads; about half of the participants in the survey reported that the programme helped them build leadership skills. The headteachers' positive changes with respect to clearer vision and confidence were discernible among the teachers and governing bodies even though they were less aware of the training programme (Bush, Briggs and Middlewood, 2006). Furthermore, Brundett (2006) using a questionnaire-based study analysed the importance of the Leading from the Middle (LftM) programme focusing on training the middle leaders in schools in England. According to the respondents, the programme had boosted the confidence of the middle leaders which enabled them to take charge of the improvement areas within the school more efficiently, which further had improved the teaching practices in school particularly in maths teaching, ICT integration and web development.

## 2.4. Drawbacks of the school leadership training programmes

However, not all training programmes can incorporate the leadership dimensions within their agenda and mostly focus on training school leaders on managerial aspects. Ng (2017) collected data from documents as well as semi-structured interviews with the school principals from primary and secondary schools, education ministers and other officers from the National Institute for Education and Management or Institut Amanuddin Baki (IAB), in Malaysia, to gain insights into the nature of the mandatory training programmes provided by the institute to aspiring school leaders or principals. The educational ministers agree that high performing schools require excellent school leaders; nonetheless, the training programmes in Malaysia were of too short duration and did not emphasise much on incorporating instructional leadership dimensions within the school leaders, which is pivotal for students' development (Robinson, Lloyd and Rowe, 2008). Furthermore, the training programmes often lacked focus on the educational challenges of the 21st century i.e. often the programme duration is too short for the leaders to learn about the practical implementation of the strategies in real life classroom practices.

In some cases, school leaders often face constraints to participate the training programmes despite possessing positive perceptions regarding them. Woods et al. (2009) conducted a qualitative study using data from online surveys and interviews from the headteachers in Scotland to study their perception regarding the Continuing Professional Development (CPD) programme. Most of the headteachers (over 80 percent) share positive perceptions about the collaboration and interaction opportunities that the CPD programme brings to them with school leaders or peers from other schools. However, some of the headteachers found it difficult to participate in the programme owing to heightened expectations from their role as instructional leaders, lack of support or resources and travel time to the training centres. Nevertheless, around three-quarters of the headteachers expect CPD to enhance their management skills. Particularly, the new headteachers perceive greater need of the CPD programme than the experienced headteachers (Woods, Woods and Cowie, 2009).

## 2.5. Appointment criteria for school leaders in African context

In the context of Africa, there was initially an absence of any formal selection criteria for appointing school principals or headteachers and the trainings were quite informal in nature. Literature suggests that in various parts of Africa, there was no such formal selection criteria for appointing school principals or headteachers and the trainings were quite informal in nature. Comparing against the principal's training experiences from various other countries, Arikewuyo (2009) finds that in Nigeria, principals were appointed solely based on their teaching experiences and no formal training pertaining to administrative

and management tasks was required from them, which often constitute the major share of a headteacher's job. Furthermore, the training provided by the National Institute for Educational Planning and Administration (NIEPA) for the aspiring leaders was too short and not sufficiently rich in content, as was observed in 2008. The existing condition of the leadership training in Nigeria had necessitated provision of proper training programmes for the aspiring leaders (Arikewuyo, 2009). Furthermore, Donkor (2015) suggests that in Ghana there is no formal criteria for appointing school leaders in schools and often the training programmes assume that the prospective leaders are already potential leaders and do not focus the training on the appropriate leadership and management skills.

## **2.6. Nature of the school leader training programmes in African countries**

Sofo and Abonyi, (2018) conducted a mixed-method (quantitative and qualitative) approach focusing on rural schools in Ghana to study the kind of professional development activities (PDAs) in which the school leaders (comprising of head teachers, assistant head teachers and form masters) participated and how they benefited from such activities. Most of the leaders relied on meetings, workshops, reading newspapers, magazines, learning on the job or coaching from peers, supervisors and/or subordinates. At least four of the PDAs took place in form of online learning from internet and formal university-based learnings. The meetings often provided the most effective methods for new headteachers to learn from experienced headteachers and even ask questions. The nature of coaching from the existing teachers, even if mostly informal in nature, assisted the newly appointed headteachers in many ways to understand their role. Visiting other schools often provided a good opportunity to learn and exchange ideas, although not everyone was able to avail this opportunity constrained by contact hours and work in the school. Even though the leaders shared positive perceptions towards the workshops in improving their training skills, they took place on a very irregular basis. Furthermore, only 15 percent of the participating leaders could access internet to learn about professional skills. The rest could not exploit this opportunity due to limited access to internet. Even though Wei Zhang and Brundrett (2010) demonstrated (using qualitative analysis) that most of the English school leaders (particularly primary from the primary schools) preferred informal school trainings through group work or meetings within or across schools, secondary colleagues did agree that formal training programmes indeed make meaningful contributions, especially when the school size increases and there is less association among different departments within the school (Wei Zhang and Brundrett, 2010).

## **2.7. Challenges of the school leader training programmes in Africa**

The training programmes for the school leaders in Africa are often fraught with several challenges. Bush and Oduro, (2006) analysed existing literature and highlighted in their review the challenges faced by new principals particularly in sub-Saharan Africa due to absence of any formal leadership training programme, particularly highlighting on Kenya, Ghana and Ethiopia. Through extensive literature review, the authors find that in Kenya most the newly appointed headteachers (and even existing ones) are often plagued with obstacles in form of resources, students, parents, staff, or medium of instruction in school. These obstacles prevent them from focusing on their actual role as a school leader; in Ghana, the headteachers' role is often too bureaucratic and lacks collaboration and teamwork in Ethiopia, often the workload of the headteachers is related to their attitude towards their job as a headteacher; if the headteachers are attached to their (teaching) role, they also handle classroom tasks such as teaching or preparing timetables instead of performing solely administrative tasks. Pheko (2008) using qualitative analysis shows that a lack of leadership skills of the headteachers in Botswana stem from nonavailability of the training programmes because the Ministry of Education does not relate educational quality to skilled leadership. Headteachers do not feel comfortable to train teachers right after appointment and suggest that the Ministry of Education should consider compulsory pre-training courses for all the prospective headteachers. Onguko et al. (2012) conducted a study with a questionnaire and face-to-

face interviews with seven novice headteachers from the suburbs of Dar es Salaam, Tanzania to understand their experience with respect to training as headteachers, their perceptions about the training programmes and the challenges they encounter in their job as headteacher. Most of the headteachers got trained by the already existing headteachers according to the traditional apprenticeship style. They had limited options for formal professional training often due to increased dependence on nongovernmental organizations or the private sector for the provision. Even if they managed to acquire one formal university-conducted training programme, they could not implement the lessons in the classrooms due to lack of available resources, lack of understanding among parents and a community with a high level of illiteracy and lack of discipline among students. The participants often perceived the transition from teacher to (deputy) headship difficult and emphasized the need for professional training programmes for the headteachers, particularly with respect to financial management, delegation of responsibilities and building confidence and trust within the communities, students' parents and colleagues.

Thus, literature suggests that most of the school leaders in African countries often lacked proper training programmes and often relied on the existing school leaders for their training purposes. In this context, Bush and Glover (2016), analysing the existing literature, suggested that often this kind of training based on the 'apprenticeship model' is bureaucratic, hierarchic and managerial in nature and often deprives the school leaders from acquiring important leadership skills (such as instructional leadership) that is pivotal for greater student achievements; they emphasized the need for formal training programmes with extensive focus of leadership dimensions that can facilitate better educational outcomes.

All of these factors necessitated the introduction of formal training programmes in Africa that would focus both on the management and leadership dimensions.

## **2.8. Recent development and progress of the formal school leader training programmes in Africa**

There are various studies which provide insights into the formal training programmes which were recently provided in Africa to train the school leaders.

Bush et al. (2011) had presented a qualitative assessment of the Advanced Certificate in Education: School Leadership (ACE) programme which was first introduced in six provinces of South Africa in 2007-09. ACE was provided by the universities, jointly with the national Department of Education and National Management and Leadership Committee (NMLC), mostly targeting towards training the already appointed school principals and the aspiring ones. The programme came into implementation once the former South African Department of Education designed a new threshold for appointing school principals for improving educational standards. The results were mixed. The respondents who participated in the programme often expressed mixed responses regarding the course content of the material; while some found the course materials useful, others found it too elaborate and detailed and often not focusing on the main leadership aspects and less contextual considering the main problems of the South African schools. The contact sessions between the mentors and participants were often used for the content delivery of the course rather than interactive sessions. In fact, it was often costly to provide one-to-one mentoring and the mentors were often not well-trained and professional, as was needed for effective training of the participants. Furthermore, the participants often had to devote a huge amount of time in completing assignments for the training programme instead of devoting the time for school management (Bush, Kiggundu and Moorosi, 2011). This might have a detrimental influence on the students' performance, because, as Hornig, Klasik and Loeb (2010) have confirmed in one of their empirical studies, when a principal devotes more time to organizational management, it is likely to result in an improvement in students' performances and achievement.

Asuga et al. (2015) based their design on the study of Eacot (2013), who had attempted to quantify the returns of investment on the school leadership preparation programmes provided by the Australian universities using return on leadership development formula and analysing research papers focusing on various dimensions of leadership that have the best impact on student outcome. Asuga et al. (2015) attempted to study the return to investment in formal school leadership training programme (targeted towards school principals and aspiring school leaders) in Kenya, as provided by the Kenyan universities and the Kenya Education Management Institute (KEMI). Even though their study confirms that there has been an increase in provision of formal training programmes in Kenya, the training programmes often fail to emphasize the leadership dimensions that are often associated with yielding better educational outcomes.

In Ghana too, there has been increase in the number of educational reforms that train headteachers prior to their formal appointment; however, the training programmes focus mostly on administrative and management tasks instead of focusing on leadership dimensions, which mostly deal with jointly achieving school's mission geared towards better educational outcomes. Zame, Hope and Respress (2008) implemented a quantitative research paradigm providing the Competency Survey Instrument (CSI) to the headteachers working at the primary and secondary junior schools in the Greater Accra region, Ghana, to assess the headteachers' prior experience with the training programmes before appointment, the focus of the training programmes and their perception regarding prioritizing various leadership dimensions. Even though there has been greater incidence of receiving training among the headteachers pre-appointment, most of the training programmes targeted towards the management and administrative dimensions rather than the leadership goals. In fact, the headteachers also prioritized focusing on the management tasks more than exercising leadership. In fact, the headteachers assigned the lowest priority to assess pupil performances, which raises major concern towards the headteachers' perception regarding the leadership programmes and also the focus of the training programmes conducted in Ghana.

Another such leadership training programme is Leadership for Learning (LfL) which was conducted in Ghana for training the basic school headteachers. Jull et al. (2014) conducted a mixed-method approach to study headteachers' perception on the LfL programme which was conducted between April 2009 to November 2011. After evaluation of the headteachers' responses to the questionnaire pertaining to LfL programme, the authors conclude that even though the headteachers might face barriers in implementing the ideas and principles of the programme into practice, they share positive perceptions about their relevance in leadership and learning practices. In fact, there are also studies that report the effectiveness of such training programmes that had substantially improved the leadership pattern of the school leaders in South Africa; Naidoo (2019) used a mixed method approach to study how the deputy headteachers, head of the departments and post level-one teachers assess the leadership qualities of their school's principal who had graduated from the Advanced Certificate in Education: School Leadership and Management (ACELM) programme in South African schools. Over 70 percent of the respondents agreed that their principal who graduated from the ACELM programme ensured that the staff members created a positive climate for working in school, ensured that the financial committee was aware of the legal framework for formulating appropriate policy and over 60 percent agreed that their principal used different strategies depending on the circumstances; to sum up, all the respondents agreed that their schools' principals, who graduated from ACELM, often demonstrated more effective management skills (Department of Education Leadership and Management, Faculty of Education, University of Johannesburg, Johannesburg, South Africa and Naidoo, 2019).

Indeed, there is evidence which suggests that school management and training programmes can generate better outcomes in schools. Effectiveness of efficient school management programmes in reducing teachers' and student absenteeism in developing countries has been confirmed by a three-year long randomized controlled trial experiment by Blimpo et al. (2011). As a part of their experiment, Blimpo et al. (2011) had randomly assigned Gambian schools to treatment group and comparison group to study the effectiveness of Whole School Development (WSD) programme in improving the school outcomes. WSD is a comprehensive school-based management and capacity building training

programme targeted towards principals, teachers and other community representatives which was also associated with grant provision. To segregate the impact of the school-based training programme and the grant, the authors had constructed two treatment groups: one treatment group was provided training only whereas the other treatment group was provided the grant. The comparison group had obtained none of the two. After two years of intervention, there was an increase in the teacher and student involvement within the schools and it was characterized by reduced absenteeism among the teachers and the students within the treatment group which had received the training. However, there was no improvement in the students' test score over the years; the authors infer that this might result from the intervention which has successfully managed to involve even the students who were performing below the average standard. However, the authors showed that the management training programme can only be effective if the adult literacy rate is at least 45 percent at the baseline within the localities. The grant only intervention, on the other hand, had no effect either on participation or test score (Blimpo et al., 2011).

## **2.9. Blended programmes as a solution to existing constraints of the school leadership training programmes**

From the literature it becomes clear that even though most of the formal training programmes in African countries are often focused on management and administrative tasks, there is also encouraging evidence as suggested by Naidoo (2019) which highlights how the training programmes can successfully inculcate the leadership dimensions within the school leaders. Furthermore, there are often constraints in form of time, distance of the training centre, and cost of one-to-one mentoring which might deter the school leaders from (successfully) participating in these training programmes (Bush, Kiggundu and Moorosi, 2011). Online distance learning can often prevent these barriers from interfering with the school leaders' participation in the training programmes. In this context, VVOB's Professional Learning Communities (PLCs) implemented in Rwanda prove to be extremely beneficial as it is a composite of both face-to-face meetings as well as distance learning as a part of its training process. PLCs has been successful in improving teachers' and headteachers' intrinsic job motivation. PLCs provided the opportunity for greater collaboration among teachers and headteachers, both within and between different schools in Rwanda. The increased interaction among the teachers and headteachers provided a great peer learning opportunity relating to classroom practices or even managing financial matters. The essence of a collaborative attitude among teachers and headteachers participating in the PLCs was extended to stakeholders and the students' parents. The increased parental involvement contributed to changing parents' attitude towards children's education that further contributed to improving students' learnings. PLCs instilled the feeling of relatedness, autonomy and relatedness among the teachers and headteachers, which according to Self-determination theory increased the intrinsic job motivation among the headteachers and teachers. Bruns et al. (2017) highlighted the cost-effectiveness of the blended coaching programme (involving face-to-face interactions and through Skype) in improving teachers' performance at Ceará, which is one of the poorest states in Brazil. The paper used randomized controlled trial (RCT) to evaluate the effectiveness of the ICT-based programme and found that the programme was successful in improving teachers' classroom performance as teachers involved in the treatment group demonstrated greater time spent on instructions during classes and were more interactive in their approach than those in the comparison group. In fact, the improved teaching quality also led to improvement in students' performances in Maths and Portuguese. However, apart from the study by Bruns et al. (2017) there is limited literature on analyzing the impact of blended or e-learning modules on school leaders' outcome.

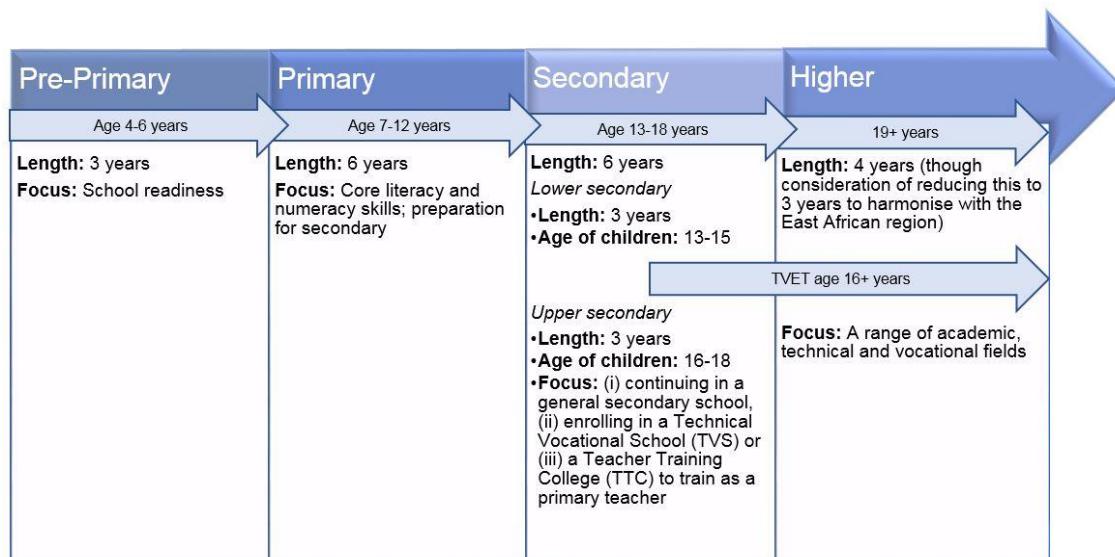
### 3. School Context

#### 3.1. Formal education system in Rwanda

The intervention of the CPD programme on effective school leadership takes place in the institutional context of formal education in Rwanda. Similar to other countries, the formal education system in Rwanda has four main levels or sub-sectors: pre-primary, primary, secondary, and higher education. This report focuses particularly on secondary education.

Compulsory education takes 12 years, where children's age normally range from 7 to 18. Compulsory education covers primary education, lower and upper secondary education (MINEDUC, 2017). There are national examinations at the end of primary, lower secondary and upper secondary education, that determine eligibility for proceeding to the next level of education. The language of instruction in primary grade 1 to 3 (P1-P3) used to be Kinyarwanda, and the language of instruction used to be English from primary 4 (P4) on. Currently, the language of instruction is English for all grades. Figure 3.1 shows the structure of the Rwandan formal education system, including pre-primary education.

**Figure 3.1 Structure of the Rwandan education system**



Source: *Figure 1 – Structure of the Rwandan education system* in MINEDUC (2017). Education Sector Strategic Plan 2018/19 to 2022/23 final draft 3<sup>rd</sup> October 2017, pp 14.

Because Rwanda is committed to provide universal education, which is free but compulsory for children aged 7 to 18, access to education has significantly increased for the nine years of compulsory education. Furthermore, there was a major reform in the curriculum, with a *new competence-based curriculum* that started in phases from January 2016 onwards.

As this report mainly deals with secondary education, we will only focus on the description and key features of secondary education in Rwanda as follows.

### 3.2. Secondary Education in Rwanda

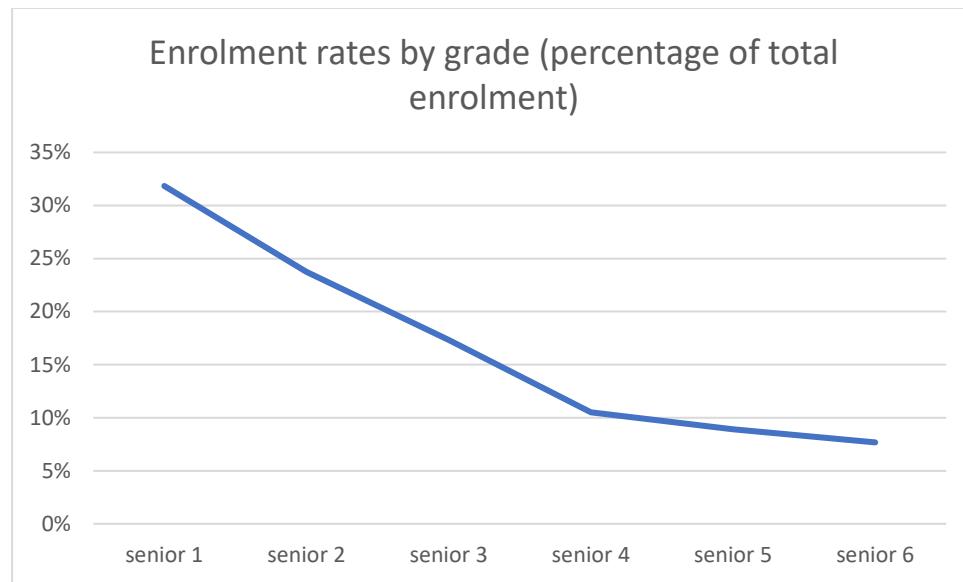
Rwandan secondary education consists of 2 times 3 years, with the first 3 years for the ordinary level (lower secondary school) and the last 3 years for advanced level (upper secondary school). In 2019, Rwanda had 1783 secondary schools (Ministry of Education, Republic of Rwanda Report 2019), quite an increase in comparison to the years 2016, when the number was roughly 1575. On average, there are 409 students per school. Of these 1728 schools, approximately 30% were public schools, 52 % government aided and 18% private. However, those private schools hosted only 12% of the total student population, whereas the government-aided schools hosted 56% of the population. Here we only present general statistics for the country.

Unlike primary education, the net enrolment rate in secondary education is only 24.5 % in 2019 (with rates of around 31.5 % in lower secondary and 16.5 % in upper secondary), compared with 98.5 % in primary education (although even there many children are not within the expected age range). Although absolute enrolment has increased over the past 5 years, the enrolment rate has decreased slightly. Furthermore, the attendance rate is even lower, although largely increased over the past 15 years, from 10% in 2005 to 23% in 2017. Whereas the challenge was first to get more students into the education system, which was clearly successful, currently the challenge is to make sure students get through the education system with a diploma in lower secondary education at the minimum, and that they gain the correct skills needed for the labour market (Mastercard Foundation, 2017).

Although the majority of students is female, over two thirds of the school staff is male, and approximately three quarters of teachers is qualified (79.2% in 2019). In 2019 there was 1 teacher for every 24 students (and 30 students per qualified teacher), and approximately 39 students per classroom. However, note that although a large share of teachers was qualified, this does not mean they are competent in content, pedagogy and the language of instruction.

Enrolment rates differ very much by grade level. As Figure 3.2**Error! Reference source not found.** shows, of the students enrolled in secondary education, more than 30% attends senior level 1, and almost 75% of all students attends lower secondary education, leaving only 25% of the enrolled students for upper secondary. Given an enrolment rate of only 30% this implies that less than 8 percent (25% of 30%) of students in Rwanda attend upper secondary education.

**Figure 3.2 Enrolment rates by grade level in secondary education, as a percentage of the total enrolment**



Source Table 4.3.5. in Republic of Rwanda Statistical yearbook 2019

With respect to promotion and dropout rates, we observe an 87% promotion rate, a 6% repetition rate and a 7% dropout rate in lower secondary education in 2018. Of those students that make it to graduation year in lower secondary education, almost 85% passes their graduation exams.

These numbers are slightly different in upper secondary school. We observe a 95% promotion rate, a 5% repetition rate and a 2% dropout rate in 2018. Of those students that made it to their graduation year in 2018, almost 90% passed the exam. However, it is important to note that this is only a very small share of the Rwandan population.

### 3.3. Relevant educational challenges in Rwanda

One of the key educational challenges in Rwanda is that there are insufficient teacher competencies in subject content, pedagogy and languages of instruction (English and Kinyarwanda). Although the access rates to secondary education (i.e. the number of schools) have increased largely over the past years, the quality of education remains a serious challenge. As discussed before, the secondary school completion rates are worrisome, especially since these rates have been declining since 2011, whereas grade repetition and dropout rates have increased. To successfully progress to tertiary education and the labour market, and to be able to master technical and vocational courses, it is necessary to have a strong basis in literacy and numeracy, which is not the case for many students. According to the latest UNICEF report (<https://www.unicef.org/rwanda/education>), even though 98 percent of the children have enrolled in primary education, the transition rate stands at only 71 percent. In this context, Sabates et al. (2010) confirms that Rwanda is one of the countries in Sub-Saharan Africa where the enrolment rate falls even below 50 percent at the end of the primary school cycle i.e. there is steep rise in age specific dropout rates at the later grades of the primary schools. Furthermore, the UNICEF report informs that the educational quality is of serious concern in Rwanda as reflected in the students' poor performance in official literacy and numeracy examinations. Particularly, the girls lag behind the boys in terms of educational achievement in 28 out of 30 Rwandan districts and relatively less enrolled in technical, vocational (TVET) and tertiary education. Moreover, the teachers struggle to teach in English, which is the official mode of instruction in the schools and the learning environment is highly traditional and teacher focused.

Furthermore, there is shortage of adequately qualified teachers, as well as access to and usage of ICT in education (MINEDUC, 2017). Making sure that teachers have the knowledge and skills to implement the new competence-based curriculum will be a big challenge but necessary factor to increase the quality of education.

More specific to school leadership, there is a study that focuses on the many educational challenges in Rwanda followed the four-year war that ended in 1994 (genocide year), including school leadership challenges. Karabera and Clarke (2019) first explain the inequality, poverty, financial burden and other challenges that the post-conflict country has been besieged with and how it affects the educational progress of the country. They further conducted semi-structured interviews including principals, deputy principals and representatives of parent-teachers association (particularly for primary schools) to identify the key educational challenges in Rwanda. The educational achievement in Rwanda was highly hampered following the war, leaving the country with a lack of qualified teachers, shortage of classrooms, high student attrition and repetition rates, high teacher-student ratio, and poor salaries for the teachers. However, the participants in the interview also agree that primary schools experienced high levels of student attrition from childhood pregnancies, poverty, and poor quality of education already before 1994. The educational system in Rwanda, which had for long relied on Belgian traditions prior to 1994, experienced a sudden change in language of instruction in English in 2008 due to heavy influence of the United Kingdom on Rwanda's educational policy. The school leaders participating in the interview reveal that such abrupt change made it difficult for the school leaders to provide professional support and mentoring to the teachers and other staffs to adopt to the new language and manage classes with children with special needs in presence of inclusive education. Furthermore, the lack of teachers' commitment and motivation, insufficient knowledge of the school leaders in accountancy and financial management further worsened their ability to perform as a leader in schools. Financial constraints, poverty of many households and lack of parents' involvement in children's education also impeded the infrastructural development in schools, effective teaching, and school leadership in Rwanda.

The participants indeed report that they have since adopted a certain range of strategies to deal by the aforementioned problems, which include establishment and support of a students' anti-violence club, field trips to genocide memorial sites, the organization of genocide commemoration events and peer-to-peer strategy for dealing with teachers' lack of proficiency in the language of instruction and also coaching and mentoring newly appointed school leaders to improve classroom teaching. However, the article also indicates that the school leaders often follow the managerial leadership style while leading the schools which is not the most effective approach for bringing improvement in the existing problems. The latter also indicates the need for a school leader professional development programme.

## 4. Intervention

### 4.1. Definitions

The intervention is a Continuous Professional Development (CPD) Diploma programme on effective school leadership for Head Teachers (HTs) and Deputy Head Teachers ((D)HTs) implemented within the context of the Leading, Teaching and Learning Together (LTLT) in Secondary Education programme. The LTLT in secondary education programme runs from 2018 to 2021, targeting secondary schools in 14 districts in Rwanda (Figure 4.1).. The short-term objective of the programme is to strengthen the competences of key education actors through improved CPD support systems for these actors. Actors that are directly targeted by the programme are: District Directors of Education (DDEs), District Education Officers (DEOs), Sector Education Inspectors (SEIs), School leaders (head teachers and deputy head teachers), School Based Mentors (SBMs) and school subject leaders (SSLs) in Science, Technology, Engineering and Mathematics (STEM). (VVOB, 2019). As part of the programme, VVOB in collaboration with REB and the University of Rwanda College of Education (UR-CE) offers certified training programmes to the different actors. In addition to the Diploma programme on effective school leadership, Sector Education Inspectors (SEIs), School Based Mentors (SBMs), and STEM SSLs are being trained in Educational Mentorship and Coaching. From 2021, VVOB and its operational partners will prepare to upscale the different CPD programmes to the remaining 16 districts. Such preparations include the provision of laptops for online learning and setting up a data ecosystem to track school progress.

**Figure 4.1 Targeted districts**



Source: Concept Note on Promoting Effective School Leadership, VVOB-Rwanda, REB & UR-CE, June 2019

### 4.2. Diploma programme in effective school leadership

The purpose of the diploma programme for effective school leadership is for head teachers and deputy head teachers to grow in their role as school leader, to develop their competences, to improve the overall

school environment and to lead their teachers in order to improve teaching quality, with the ultimate goal to improve students learning, well-being and achievements. Effective school leaders motivate teachers to invest in their professional development and encourage exchange and learning from each other. Note that, although it is not part of this evaluation study, the CPD programme organised is complemented with Professional Learning Communities (PLCs) in the treated schools.

The programme, consisting of 40 credits offered in four modules is a one-year long programme, that originally was set up to have 18 contact days (of which 16 training days in blocks of 2 days, and 2 examination days). In 2019 the programme was offered as a blended programme, with 14 training days face-to-face (f2f) and 2 days through online/distance learning. As of 2020, due to the COVID-19 pandemic, the full programme is offered online, except the examinations which will be done face-to-face. The role of the trainers (lecturers from the UR-CE and other universities in Rwanda) is different for the f2f mode of delivery (that was used pre-COVID) and the online mode. In the f2f mode, the trainers provide PowerPoint presentations, and engage participants in different f2f learning activities such as group discussion. In the online mode, the trainers make instructional videos available in the online environment, and act merely as a coach, by logging in frequently to answer questions, and to stimulate discussions on the forum. Trainers follow-up on the online activities of the students, while VVOB follows up on the online activity of the trainers. All trainers have received an e-tutoring programme prior to facilitating the online programme. Next to the activity in the formal online environment, many trainers have WhatsApp group discussions with their students, and they frequently offer support by telephone. This support involves both technical and learning support. To prepare students for the online CPD programmes, students take part in a preparatory digital literacy training which equips them with the skills to navigate the Moodle environment and complete assignments online.

The diploma programme on effective school leadership consists of four modules: (1) Overview of school leadership and working with parents and the wider community; (2) Creating strategic direction for the school; (3) Managing the school as an organisation; and (4) Leading learning & leading teaching. These modules are based on the five professional standards for effective school leadership (note that leading teaching and leading learning are separate standards). Furthermore, there are 5 crosscutting themes (school improvement planning, inclusive education and gender, monitoring and evaluation, ICT integration and school collaboration).

In these modules participating (D)HTs use an interpretative framework of a school leader, consisting of professional self-understanding and subjective education theory. (D)HTs are challenged to a constant interaction between thinking and practice. Reflective practices are very important in the programme and are a crucial process to remain critical towards oneself and one's work. Printouts of the programme manuals and other learning materials are distributed to the students. This includes four extensive programme manuals, one for each module, with theory and learning activities. As such, both the f2f cohort, as the blended learning and fully online cohorts, received printouts of their learning materials.

As the programme is competence based, it contains both formative and continuous assessment (60%) and summative assessment (40%). Furthermore, group learning and sharing experiences is an explicit part of the programme. The formative assessment consists of 8 practice-based written assignments (4 modules with 2 assignments per module), participation during the training activities (e.g. in forums and online quizzes) and a portfolio. Furthermore, the programme includes a field visit by trainers to the schools of participating HTs and DHTs. The summative assessment consists of a two hour long written examination per module. Students are only allowed to participate in the written exam for each module, when they have at least an 85% attendance rate for the module and have submitted all assignments for both modules.

## 5. Research questions and method

### 5.1. Research questions

Since the CPD programme for school leaders will soon be scaled up to 16 additional districts and the programme in its current form can be considered as resource intensive, we wish to have a balanced decision on the best way that distance learning using digital/online tools (short: e-learning) can be given to (D)HT. As such, we aim to experiment with two different forms of e-learning, primarily trainer-led versus primarily peer-led moderation.

Given the limited availability of resources to organize the CPD programme, we wish to explore whether the peer-led group, with limited access to a trainer from the UR-CE, performs as well as the trainer-led group in terms of cognitive and non-cognitive outcomes. In particular, the main underlying question to this research is formulated as follows: can the peer-led group perform equally well as the trainer-led group in terms of school leadership styles, standards, skills and competences, and dropout from and exam results on the CPD programme? Online moderation by trainers from UR-CE may play a role in better student performance (Yen et al., 2018). However, when thinking carefully about the design of an e-learning course, literature also indicates that interaction with a tutor is not per definition always meaningful and, as such, not always adding to student performance, as compared to a well-designed e-learning course with only limited mentoring available (Price et al., 2007).

The proposed research aims at answering four questions in this respect:

1. How effective is e-learning with e-moderation by a trainer from UR-CE (trainer-led group) vs. e-learning-with e-moderation by peers (peer-led group) in improving school leadership outcomes?
2. Which factors explain any potential differences in the effectiveness of trainer-led e-learning as compared to peer-led e-learning?
3. How does trainer-led e-learning compare to peer-led e-learning in terms of costs?
4. Which intervention is most cost-effective (1) overall, and (2) for various outcome measures and for various sub-groups of participants?

To this end, we conduct an experimental study that involves both a trainer-led group and a peer-led group, and measurement of participants' outcomes pre- and post-intervention, as well as teacher perceptions of leadership by the (D)HT pre- and post-intervention. Schools are randomised into one of the two study arms according to the administrative sector level, meaning that within a sector all schools are either part of the trainer-led group or of the peer-led group. The reason for randomizing schools at sector level and not at school level, was driven by the fact that school leaders in one sector often know each other and are likely to exchange on ideas and information in for instance Professional Learning Communities which would increase the chance of contamination. Both groups will receive guidance from a UR-CE trainer on how to access the online programme and will be supported by this trainer during a field visit. Both groups will also receive the CPD programme fully online. However, the trainer-led group will receive guidance from trainers in online activities while the peer-led group will receive guidance from peers in online activities. In the trainer-led group, trainees are required to attend one synchronous session per module (additional sessions are optional). Recordings of these sessions are also shared with trainees from the peer-led group.

### 5.2. Selection of relevant school leadership outcomes

The relevant school leadership outcomes that we focus on in this study are the following: (1) performance outcomes from the certificate programme (performance on exams and the portfolio); (2) subjective/non-cognitive outcomes measured via questionnaires (on barriers to participate in e-learning,

job satisfaction, work task motivation, motivation to learn, self-efficacy and on leadership styles, competences and skills); (3) outcomes from the online Moodle environment in which the online course takes place (such as attendance/dropout (i.e. number of sessions completed), participation in e-learning activities, (i.e. scores on online quizzes, activity on the online forum, participation in online workshops), and (4) a school-level assessment of the standards of effective school leadership.

In this baseline report we can obviously not include all these outcomes yet, and we therefore focus on the subjective/non-cognitive pre-test outcomes measured via pre-test questionnaires, where the leadership styles, competences and skills are measured from both the (D)HT point of view as well as from the point of view of the teachers at the participating schools.

Since the five standards of effective school leadership set forth by REB form the backbone of the Diploma programme, it is also relevant to assess these. The standards will be assessed via a School Leadership Assessment Tool, which is assessed by trained enumerators based on both background information of the school as well as 66 key indicators that are underlying the five standards of effective leadership. The assessment consists of half a day of document checks, observations and interviews at the school. The school leadership assessment will be a valuable addition to the surveys that are discussed and described below, as it is more holistic and triangulated. However, given the current covid-19 situation, it only makes sense to execute this school assessment when schools have been open for at least 2 months.

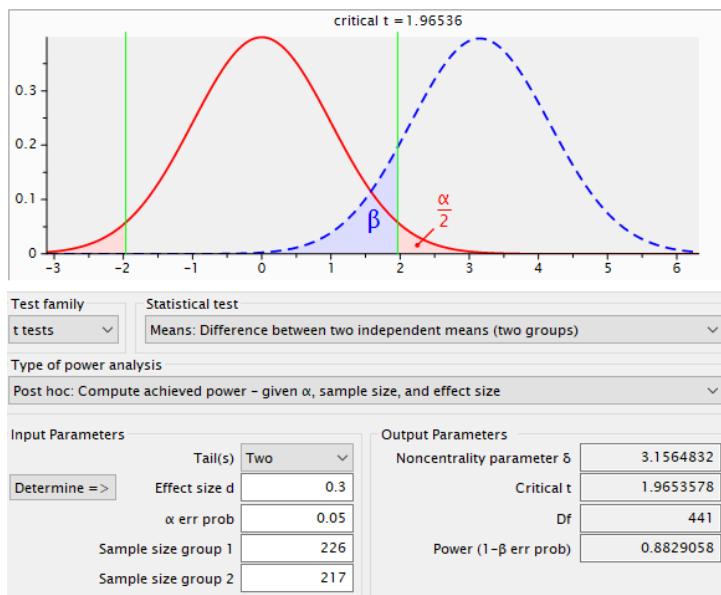
### 5.3. Power analysis of (D)HT sample

The school leadership and CPD outcomes will be assessed both by the (D)HT and by a random pair of teachers (new teachers, school-based mentors and STEM school subject leaders to be excluded) from the same schools wherein the (D)HT are school leaders. In order to decide on the required number of HTs in the cost-effectiveness study, we conducted a power analysis (see **Error! Reference source not found.**).

Originally, we had planned to use a sample size of 442 schools, including 496 (D)HT in all schools together, allowing us to detect small significant effect sizes of 0.25 to 0.3. However, it turned out to be more difficult get to this sample size, which is why we had to include 4 more districts and decided to randomize at the sector level instead of at the district level. Eventually, we are using a sample of 381 schools, including 443 (D)HT in all schools together, which allows us to detect small significant effect sizes of 0.25 to 0.3. Hereby, we cluster assignment to trainer-led and peer-led group at sector-level (and not at individual-level).

Apart from the treatment assignment being at sector-level, (deputy) head teachers from the same school will also experience the same school environment. Figure 5.1 is based on these 443 (D)HTs and departs from a standard error of 0.05 and differences in sample sizes in group 1 (the peer-led group) and group 2 (the trainer-led group). The software then computes the likelihood that a type II error occurs, which means that we reject the alternative hypothesis of significant differences between trainer-led and peer-led (deputy) head teachers, while, in fact, the effects would have been significant if we would have had a larger sample size to prove that. Figure 5.1 shows that the sample size should be sufficient to reduce the chances of incorrectly rejecting the alternative hypothesis to a little over 10 percent (power of 0.88 whereas a power of 0.80 is acceptable).

Figure 5.1 Power analysis



Source: G-power software

### 5.3.1. Non-response among (D)HTs

There was some non-response and dropout in the pre-test for the (D)HT with a total of 53 individuals that were lost. With respect to dropout from the sample: there were 20 individuals that did not pass the digital literacy course and therefore are not participating in the experiment. Furthermore, there were a few people that already took the course, did not have a computer or were not interested in the course. Furthermore, there were some participants in the course that did not fill out the pre-test for various reasons. Some participants started the survey but did not submit the survey (implying they did not finish). Some participants said they would submit later, but despite numerous reminders still did not do that. For two cases no consent was given for participation in the study. The non-response and dropout resulted in about 1/8 of (D)HTs that were to participate that could not be included. Based on participant characteristics that were known before the pre-test was taken (gender and position) the dropout and non-response does not seem to be selective.

Figure 5.2 represents the flowchart that shows the sample selection of the school from the population and randomization of the schools to the peer-led and the trainer-led groups:

Figure 5.2 Flowchart demonstrating randomization of the school population to trainer-led and peer-led group

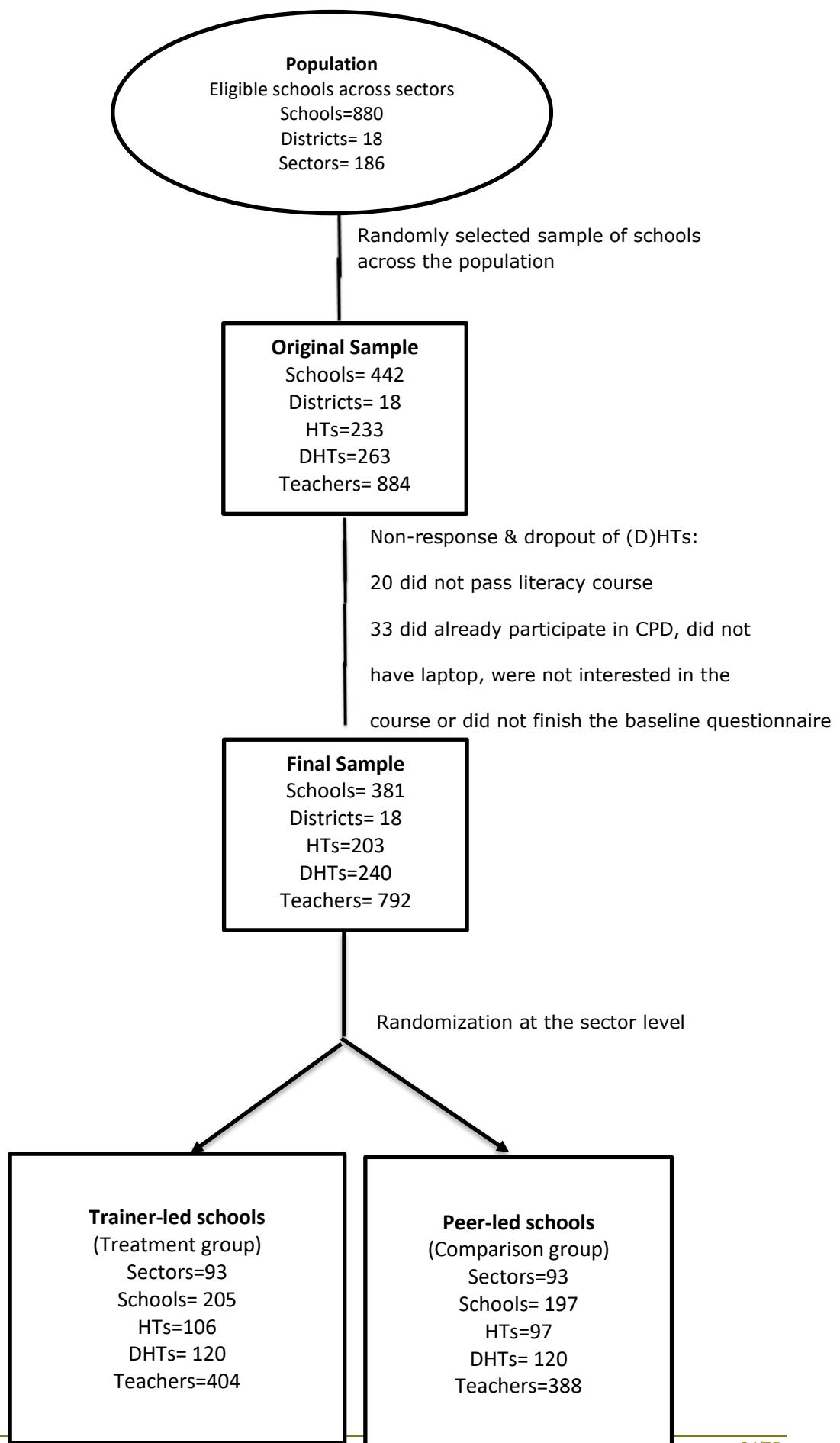


Table 5.1 shows the total number of schools and participants that have taken part in the pre-test, and how they are divided over the trainer-led and peer-led groups. We ended up with a total of 381 schools, and a total of 443 (D)HTs filling out the pre-test questionnaire, of which 226 are part of the trainer-led group, and 217 of the peer-led group.

Furthermore, in these 381 schools, in order to assess school leadership outcomes of their (D)HT, we received responses from 388 teachers in the peer-led group and 404 teachers in the trainer-led group.

**Table 5.1 Population size and selection of schools and respondents into the intervention**

|                     | Trainer-led group<br>(98 Sectors)   | Peer-led group<br>(94 Sectors)  | Total<br>(192 Sectors)  |
|---------------------|---|---|---|
| Population size     | 464 schools   | 416 schools   | 880 schools   |
| Pre-test Sample (N) | 205 schools;<br>106 head teachers and<br>120 deputy head teachers<br>404 teachers | 197 schools;<br>97 head teachers and<br>120 deputy head<br>teachers<br>388 teachers | 381 schools;<br>203 head teachers and<br>240 deputy head teachers<br>792 teachers |

#### 5.4. Power analysis for teacher sample

Originally, we aimed to get responses from 884 teachers from the same schools as the (D)HTs allowing us to detect a small effect. In these 884 teachers, we aimed for a 50/50 distribution in sex. Eventually, we have received responses from 792 teachers from the same schools as the (D)HT. We conduct a power analysis for this group of teachers similarly as done for the (D)HT (figure not included). We depart from a standard error of 0.05 and conduct a two-tailed T-test for two independent means, and conclude that we can reach a power of more than 0.8 with an estimated effect size of 0.2. As such, we are able to detect significant small effect sizes having 388 teachers in the peer-led group and 404 teachers in the trainer-led group.

#### 5.5. Data collection

A team of 20 trained enumerators collected data from teachers through telephone surveys using Kobo Toolbox. Enumerators were blinded to the intervention group during the teacher surveys.

For (D)HTs: (D)HTs filled in the surveys themselves during a f2f preparatory workshop. The same 20 enumerators were there to support them with filling in the survey and followed-up with them through phone calls if they did not submit. Note that during the preparatory session, (D)HT did find out in which group they were (there was no way around it as they were all present at the same day but were accessing different e-learning courses). So, the intervention is not blinded, only for the teachers.

## 5.6. Research method

The cost-effectiveness study is designed as a randomized trial, wherein schools are randomly assigned to the two groups based on the sector in which the school is located. All (D)HTs of the schools that are allocated to the treatment group take part in the trainer-led programme and all (D)HTs of the schools that are allocated to the comparison group take part in the peer-led programme. Therefore, the analysis can take place with relative straightforward statistical techniques. These include a comparison of the trainer-led scenario with the peer-led scenario in relation to the outcomes mentioned above, while controlling for background information of (D)HT and/or schools using regression techniques.

Next, we can use a two-step analysis if we want to look at sub-parts of the two scenario-learning modalities, such as actual participation in the online programme. We then first analyse how participation in different e-learning activities varies among the two e-learning modalities and then, in a second step, what effect this has on other outcomes (e.g. the standards of effective school leadership). For this we will use a Two-Stage Least-Squares method of analysis, with random assignment in the first stage.

Besides the effectiveness, we also wish to estimate the cost-effectiveness of the Diploma Programme on Effective School Leadership. For this purpose, we balance the costs and the returns of the programme. The costs are measured as the spending (in dollars, or in local currency) on the implementation of the programme. The diploma programme involves the training of HTs and (D)HTs. The returns will be expressed in terms of, for example, improved (D)HTs' job satisfaction and ideally also learning outcomes of students. In the cost effectiveness analysis, we explicitly compare the costs of the two scenarios and assess if the additional costs of the trainer-led scenario are worthwhile in relation to the difference in effect size. This proposed method is comparable to cost-effectiveness analysis in Cabus et al. (2020).

In this baseline report the methods used are confined to simple descriptive statistics in which we present the results on the different statements of subjective/non-cognitive outcomes measured via questionnaires and to group comparisons between treatment and comparison group, using T-statistics, Mann-Whitney statistics and Chi-squared statistics.

## 6. Data

### 6.1. Composition of the sample

The population for analysis involves 443 (D)HTs. 51 percent of the all (D)HT in the sample were trainer-led (i.e. comprised the treatment group) and the rest (49 percent) of the respondents were peer-led (i.e. constituted the comparison group) (Table 6.1). In terms of teachers, there were total of 792 teachers involved in the survey. Of these 792 teachers, 404 teach in schools of which the (D)HT was part of the trainer-led group, and 388 teach in schools that belong to the peer-led group.

### 6.2. Background characteristics

#### 6.2.1. Descriptive statistics (D)HT sample

This section provides information about the demographic characteristics of the (D)HTs relating to work experience, educational qualification, some other variables such as job satisfaction, awareness of the CPD programme and also discusses some of the characteristics of the schools (relating to location, infrastructure, number of students, etc.) involved in the study.

Table 6.1 and Table 6.2 jointly provide information about the demographic characteristics of the (D)HT in the sample, and information about the schools involved in the study, for example: relating to infrastructure availability, location and means of transport to school. We see that 81% of the (D)HTs in this study are male, and 44% are head teacher vs 56% deputy head teacher. of the CPD programme and about half of the respondents have worked as (D)HT in another school, with an average of 6 years. Most of them did not teach at this school before becoming a (D)HT. (D)HTs were also asked about their familiarity with the VVOB CPD programme and 78 percent of the respondents were familiar with the goals, Table 6.2 shows that the (D)HT respondents' average age was 42 years. Most of the respondents have working experience for approximately 5 years in the current school, the maximum years of experience is reportedly 40 years. Note that the number of observations in Table 6.2 shows that not all questions were answered by all (D)HTs, some questions were only asked to (D)HTs that answered yes on a previous question (e.g. how many years they worked as a (D)HT at another school), but other questions contain some missings.

Only 32 percent of the respondents had teaching experience for a little above 5 years before becoming a (D)HT; while working as a teacher, 36 percent of the respondents had taught language and literature whereas 30 percent of the respondents had taught science (Figure 6.2). Over 80 percent of the (D)HT respondents are reportedly satisfied with their job (Figure 6.3). Furthermore, 78 percent of the (D)HT respondents mention to be aware of the CPD programme organized by VVOB and UR-CE. Over 80 percent of the respondents have a Bachelor of education qualification (A0) (Figure 6.1).

With respect of the school characteristics, the schools of the respondents on average have a student population over 1400 (Table 6.3).

60 percent of the (D)HT respondents describe their school location as a village whereas none describes the location as large cities (Figure 6.4). Most of the schools are concentrated within the Rutsiro, Gakenke and Nyamagabe districts (Figure 6.5), which is a natural consequence of the setup of the study, as these were the 4 new districts in our studies. In these districts more (D)HT were included to reach a larger sample, because in the other districts many (D)HT were already trained in previous periods of the diploma programme. The schools are mostly government-aided schools with a nominal fraction of 4

percent being private school (Figure 6.6). Over half of the (D)HTs mention that they have access to a computer or personal laptop (which is an interesting finding as they need a laptop to participate in the CPD programme), and work at schools with separate toilets for boys and girls and that have access to internet. The majority of (D)HTs work at a school with access to electricity, access to improved drinking water and access to hand washing stations. Over 70 percent of the (D)HT respondents describe the travel time to the school long (or very) (Figure 6.7).

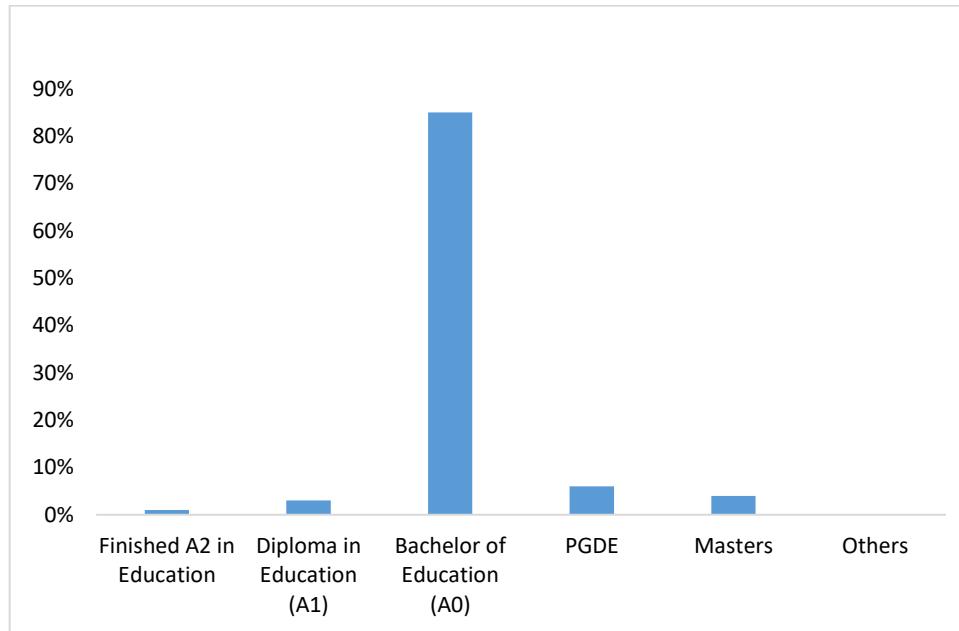
**Table 6.1 Descriptive statistics on the categorical variables of the (D)HTs**

| Description   | Percentage |
|---|------------|
| <b>Gender</b>   |            |
| Male  | 81%        |
| Female  | 19%        |
| <b>Current function</b>   |            |
| Headteacher   | 44%        |
| Deputy headteacher  | 56%        |
| <b>Group-CEA</b>  |            |
| Peer-led  | 49%        |
| Trainer-led   | 51%        |
| <b>Are you familiar with the purpose/goals of the CPD diploma programme for head teachers and deputy head teachers organized by VVOB and UR-CE?</b> |            |
| Yes   | 78%        |
| No  | 22%        |
| <b>Did you work as a (deputy) head teacher in another school?</b>   |            |
| Yes   | 50%        |
| No  | 50%        |
| <b>Have you taught as a teacher in this school before becoming a (deputy) head teacher?</b>   |            |
| Yes   | 32%        |
| No  | 68%        |
| <b>Does your school have the following infrastructure?</b>  |            |
| Access to electricity   | 88%        |
| Access to internet  | 55%        |
| Access to separate toilets for boys and girls   | 55%        |
| Access to improved drinking water   | 72%        |
| Access to hand washing stations   | 87%        |
| <b>Student access to computer or laptop</b>   | 64%        |
| <b>Teacher access to computer or laptop</b>   | 53%        |

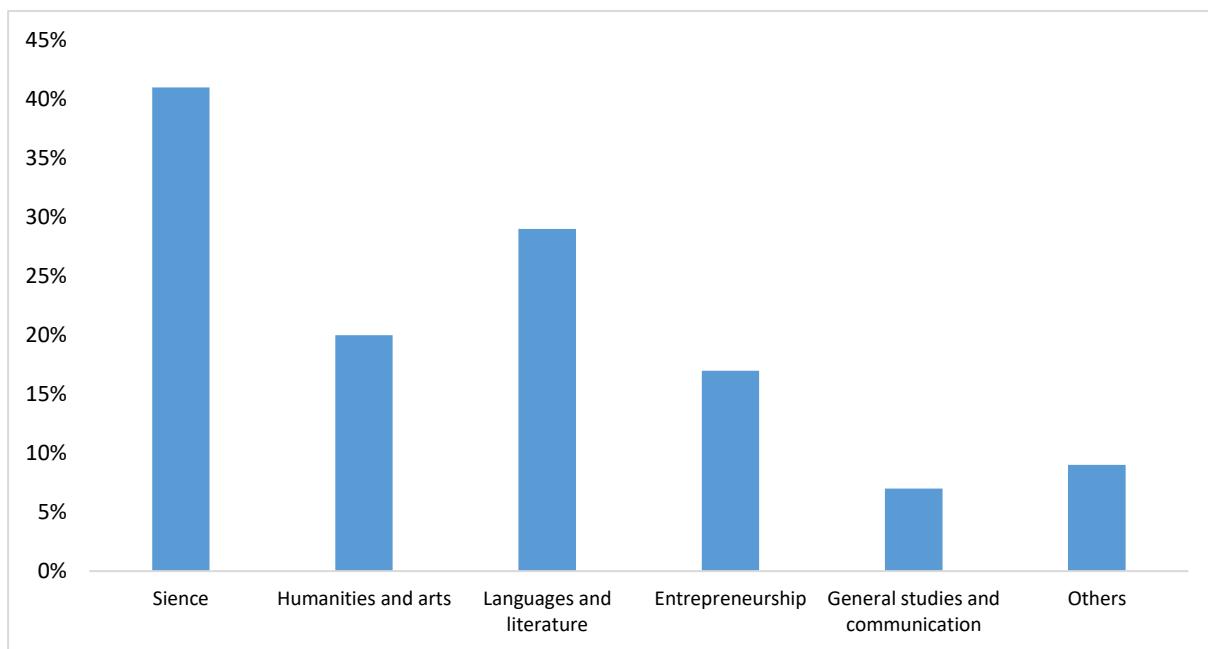
**Table 6.2 Descriptive statistics on the numerical variables of the (D)HT respondents**

| Description   | Number of respondents | Average | SD   | Min | Max |
|---|-----------------------|---------|------|-----|-----|
| <b>How old are you?</b>   | 443                   | 42.23   | 7,02 | 26  | 64  |
| <b>How long have you been a D(H) at this school (in years)</b>                      | 442                   | 5.93    | 4,24 | 0   | 36  |
| <b>How many years did you work as a (deputy) head teacher in the other schools?</b> | 214                   | 6.30    | 4,63 | 1   | 29  |
| <b>How many years are you working in this school?</b>                               | 443                   | 5.28    | 4.42 | 0   | 40  |

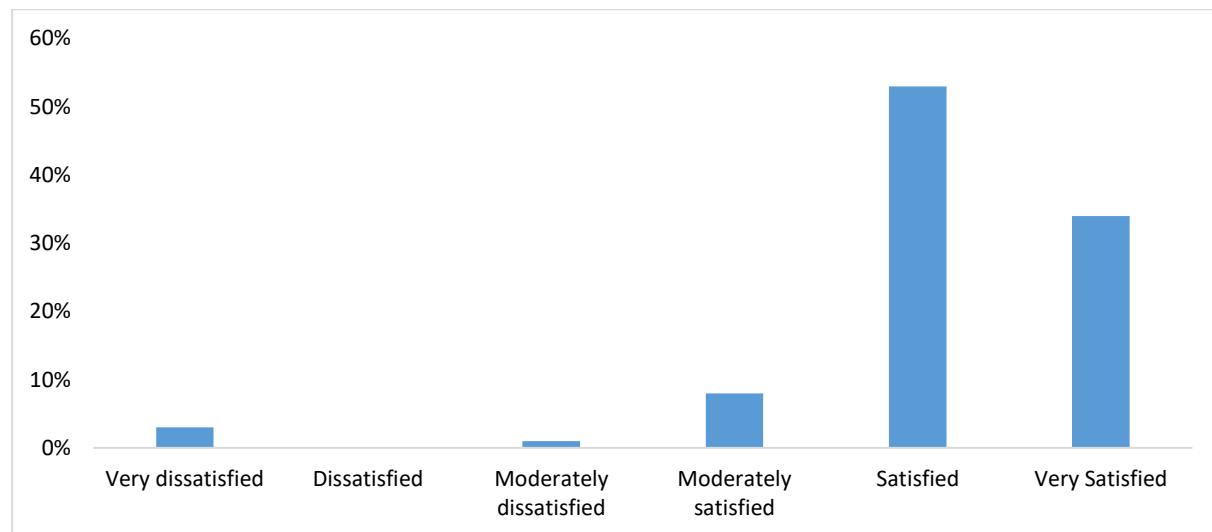
**Figure 6.1 Highest level of qualification of (D)HT**



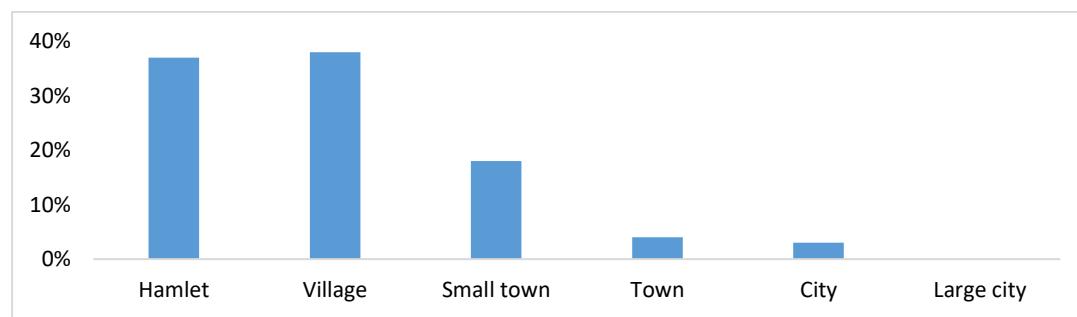
**Figure 6.2 Subjects taught before becoming (D)HT**



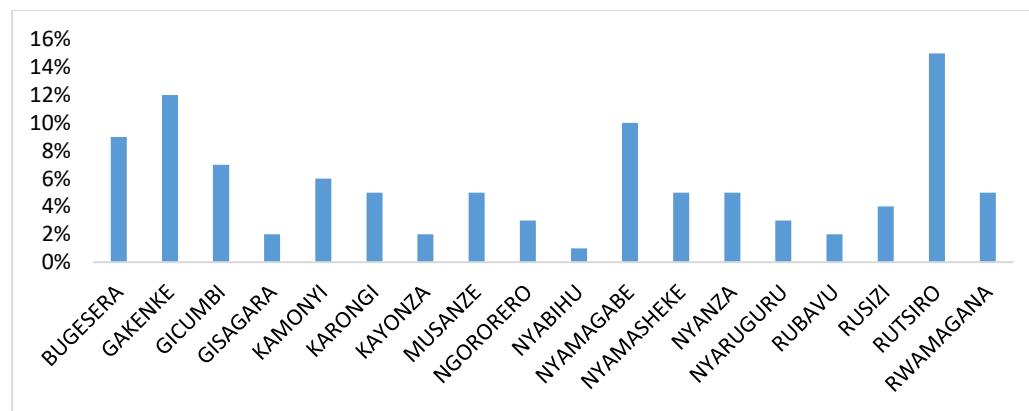
**Figure 6.3 How satisfied are you with your job as a (deputy) head teacher?**



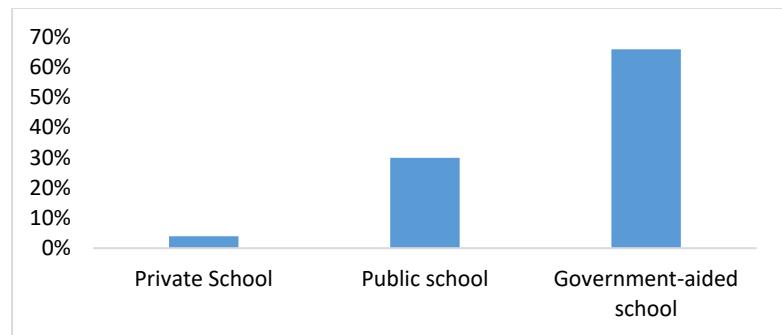
**Figure 6.4 School location ((D)HT response)**



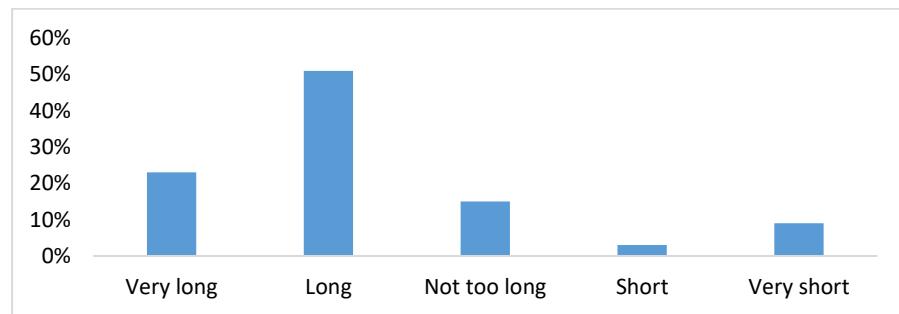
**Figure 6.5 Percentage of schools within districts**



**Figure 6.6 School type**



**Figure 6.7 Travel time to school ((D)HTs perspective)**



### 6.2.2. Descriptive statistics teacher sample

Table 6.3 and Table 6.4 together provide information about the demographic characteristics of the teachers involved in the study. Out of 792 teachers involved in the study, over half of the respondents had a Bachelor of Education (A0) as the highest-level qualification whereas only one percent of the respondents had a masters as their highest qualification (Figure 6.8). The 60 percent of the respondents who had experience teaching in another school, on average taught about six years in the other school. Most of the teachers report that they have approximately 6.5 years of experience in their present school.

About 40 percent of the teachers included in the study taught science as a part of their profession, followed by language and literature, as reported by 29 percent of the respondents (Figure 6.9).

Figure 6.10 indicates that over 80 percent of the teachers shared positive perceptions towards the (D)HT and about 70 percent of the respondents were aware of the goals of the CPD diploma programme (Table 6.3). 79 percent of the teachers reportedly travel to the school by foot, and none uses private car as a commuting mean to school (Figure 6.11)

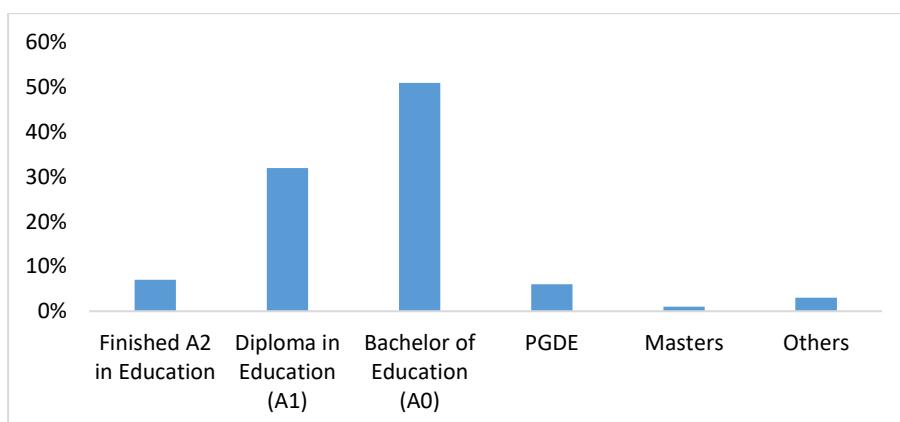
**Table 6.3 Demographic characteristics on the categorical variables of the Teachers**

| Description   | Percentages |
|---|-------------|
| <b>What is your gender?</b>   |             |
| <b>Male</b>   | 55%         |
| <b>Female</b>   | 45%         |
| <b>Did you work as a teacher in another school?</b>   |             |
| <b>Yes</b>  | 60%         |
| <b>No</b>   | 40%         |
| <b>Are you familiar with the purpose/goals of the CPD diploma programme for head teachers and deputy head teachers organized by VVOB and UR-CE?</b> |             |
| <b>Yes</b>  | 70%         |
| <b>No</b>   | 30%         |
| <b>Were there activities organized within the school during lockdown?</b>   |             |
| <b>Yes</b>  | 83%         |
| <b>No</b>   | 17%         |

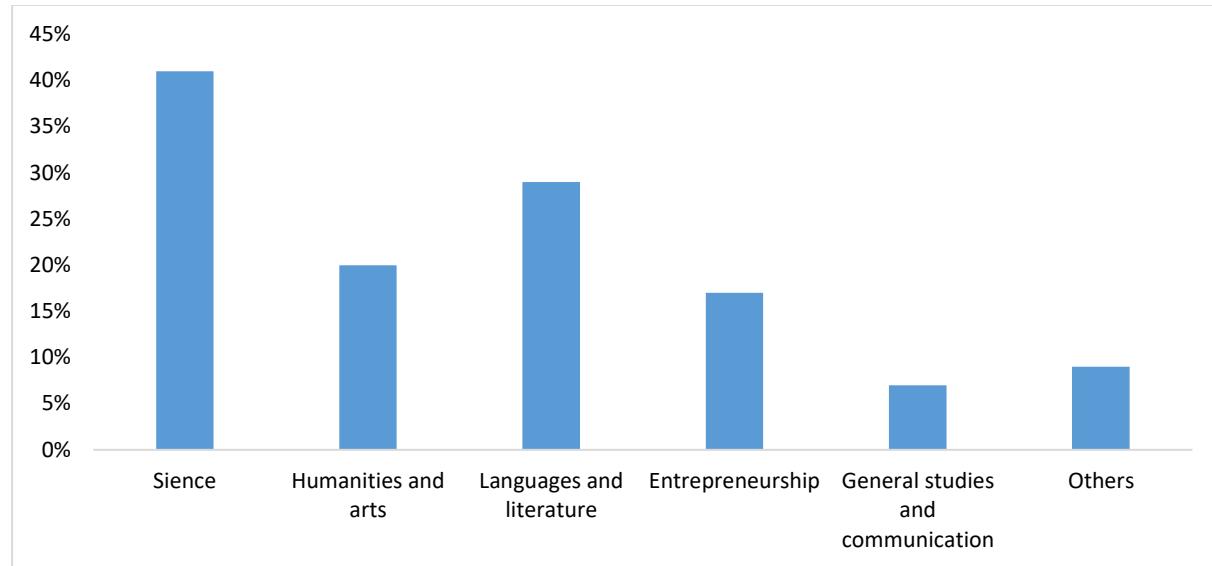
**Table 6.4 Descriptive statistics on the numerical variables of the teachers**

| Description  | Number of respondents | Average | SD    | Min | Max |
|--|-----------------------|---------|-------|-----|-----|
| <b>How old are you?</b>  | 792                   | 35.68   | 6,64  | 21  | 60  |
| <b>How many years are you a teacher in this school?</b>          | 792                   | 6.30    | 4,30  | 0   | 28  |
| <b>How many years are you a teacher in another school?</b>       | 482                   | 5.83    | 5,24  | 0   | 27  |
| <b>How long does it take you to come to school (in minutes)?</b> | 792                   | 31.33   | 29,88 | 1   | 195 |

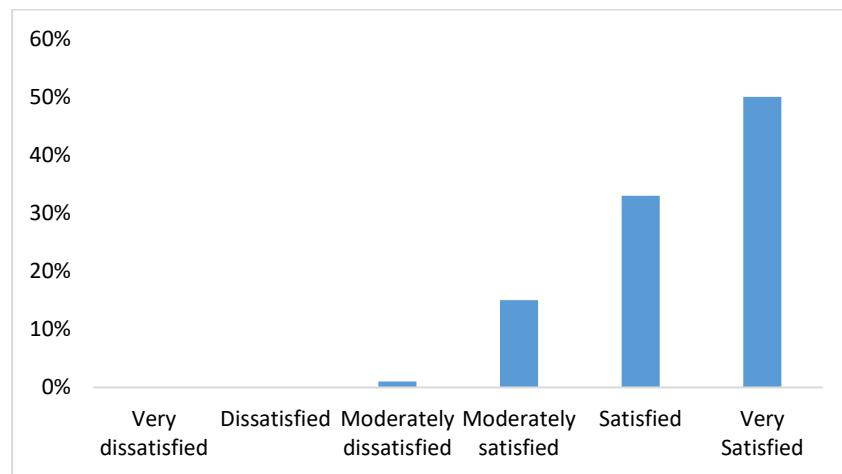
**Figure 6.8 Highest educational qualification among teachers**



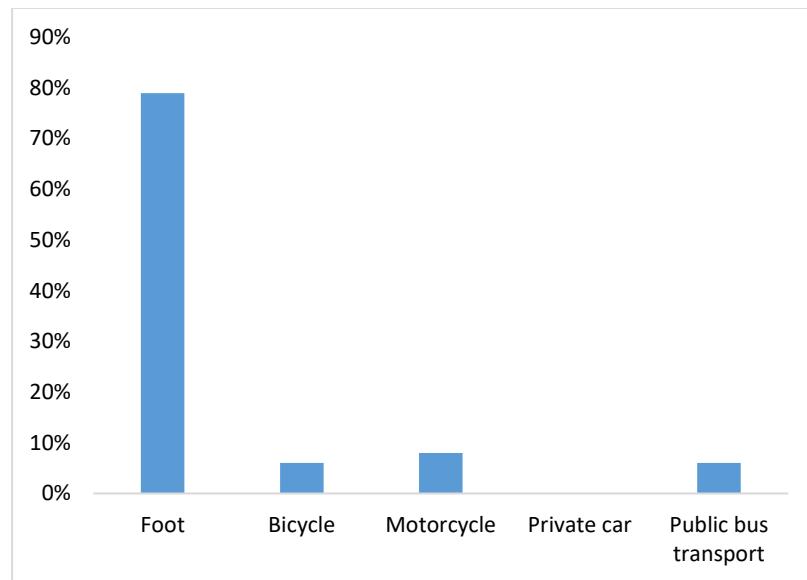
**Figure 6.9 Subject taught by the teachers**



**Figure 6.10 Satisfaction with (D)HT**



**Figure 6.11 Means of transport to school for the teachers**



### 6.3. Comparability of treatment and comparison group

Table 6.5 provides background information about the peer-led (D)HT respondents (comprising the comparison group) and the trainer-led (D)HT respondents (comprising the treatment group) involved in the study to see if they are on average similar in terms of all the characteristics at the baseline.

Table 6.5 shows that even though the trainer-led group on average is slightly larger in size than the peer-led group, there is no significant difference between their mean values corresponding to demographic characteristics such as age, gender, work experience as well as the characteristics of the schools (in terms of student population, teacher population, location, type, etc) with which they are associated.

In other words, the trainer-led group and the peer-led group are on average very similar to each other in the sense that none of the p-values corresponding to each of the test statistics in Table 6.5 are significant at 5 percent level (or even at a lower level).

Table 6.6 presents a comparative analysis between the treatment group and comparison group for the teachers, based on demographic characteristics such as age work experience, satisfaction with (D)HT, educational qualification as well as with respect to the school characteristics, including means of transport to school. On analysing the teachers' responses to the questionnaire, Table 6.6 infers that the teachers in the treatment group and comparison group are on average similar with respect to most of the aspects such as age, gender, and work experience.

**Table 6.5 T-statistics, Mann-Whitney statistics and Chi-squared statistics of treatment versus comparison group ((D)HTs)**

| <b>Variable</b>                           | <b>Peer-led Group</b> |                |                  | <b>Trainer-led Group</b> |                |                  | <b>T-statistic</b>  | <b>P-value</b> |
|---|-----------------------|----------------|------------------|--------------------------|----------------|------------------|---------------------|----------------|
|   | <b>N</b>              | <b>Average</b> | <b>Std. Dev.</b> | <b>N</b>                 | <b>Average</b> | <b>Std. Dev.</b> |                     |                |
| Age                                       | 217                   | 42.13          | 6.99             | 226                      | 42.33          | 7.05             | 0.30                | 0.76           |
| Years of working as (D)HT in school       | 216                   | 5.99           | 4.00             | 226                      | 5.88           | 4.46             | 0.25                | 0.80           |
| Years of working as (D)HT in other school | 97                    | 6.36           | 4.61             | 117                      | 6.25           | 4.67             | 0.18                | 0.86           |
| Students' population in school            | 217                   | 1544.87        | 2117.70          | 226                      | 1264.57        | 1176.41          | 1.73                | 0.08           |
| Teachers' population in school            | 217                   | 37.75          | 80.56            | 226                      | 35.04          | 66.80            | 0.39                | 0.70           |
| <b>Variable</b>                           | <b>N</b>              |                |                  | <b>N</b>                 |                |                  | <b>Pearson Chi2</b> | <b>P-value</b> |
|   |                       |                |                  |                          |                |                  |                     |                |
| Gender                                    |                       |                |                  |                          |                |                  | 0.04                | 0.83           |
| <i>Male</i>                               | 174                   |                |                  | 183                      |                |                  |                     |                |
| <i>Female</i>                             | 43                    |                |                  | 43                       |                |                  |                     |                |
| Current function:                         |                       |                |                  |                          |                |                  |                     |                |
| <i>DHT</i>                                | 92                    |                |                  | 105                      |                |                  | 0.74                | 0.39           |
| <i>HT</i>                                 | 125                   |                |                  | 121                      |                |                  |                     |                |
| Worked as (D)HT in other school:          |                       |                |                  |                          |                |                  |                     |                |
| Yes                                       | 100                   |                |                  | 120                      |                |                  | 2.18                | 0.14           |
| No  | 117                   |                |                  | 106                      |                |                  |                     |                |
| <b>Subjects taught</b>                    |                       |                |                  |                          |                |                  |                     |                |
| Science                                   | 20                    |                |                  | 22                       |                |                  | 0.01                | 0.94           |
| Humanities and Arts                       | 15                    |                |                  | 15                       |                |                  | 0.13                | 0.72           |
| Language and Literature                   | 23                    |                |                  | 27                       |                |                  | 0.04                | 0.84           |
| Entrepreneurship                          | 3                     |                |                  | 6                        |                |                  | 0.73                | 0.39           |
| General Studies and Communication         | 4                     |                |                  | 4                        |                |                  | 0.03                | 0.87           |
| Other                                     | 8                     |                |                  | 10                       |                |                  | 0.06                | 0.81           |

**Table 6.6 T-statistics, Mann-Whitney statistics and Chi-squared statistics of treatment versus comparison group (teachers)**

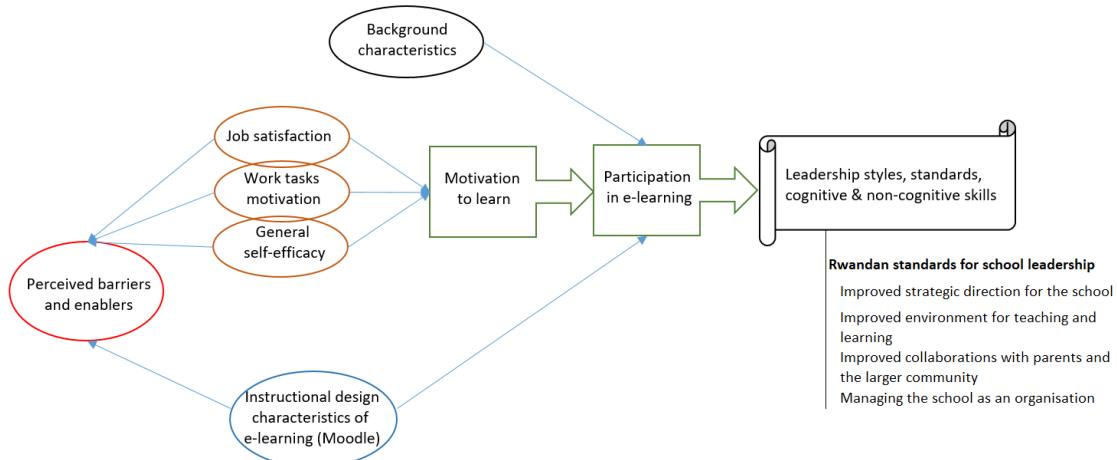
| Variable                                    | Peer-led Group |         |           | Trainer-led Group |         |           | T-statistic  | P-value |
|---|----------------|---------|-----------|-------------------|---------|-----------|--------------|---------|
|   | N              | Average | Std. Dev. | N                 | Average | Std. Dev. |              |         |
| Age   | 388            | 35.48   | 6.45      | 404               | 35.87   | 6.83      | -0.84        | 0.40    |
| Years of working as teacher in school       | 388            | 6.25    | 4.11      | 404               | 6.34    | 4.48      | -0.30        | 0.77    |
| Years of working as teacher in other school | 230            | 5.75    | 5.12      | 252               | 5.90    | 5.35      | -0.30        | 0.76    |
| Duration for coming to school (in minutes)  | 388            | 30.37   | 28.34     | 404               | 32.23   | 29.88     | -0.87        | 0.39    |
| Variable                                    | N              |         |           | N                 |         |           | Pearson Chi2 | P-value |
| <b>Gender</b>                               |                |         |           |                   |         |           |              |         |
| Male  | 210            |         |           | 228               |         |           | 0.43         | 0.51    |
| Female                                      | 178            |         |           | 176               |         |           |              |         |
| <b>Knowledge on VVOB</b>                    |                |         |           |                   |         |           |              |         |
| Yes   | 274            |         |           | 270               |         |           | 1.32         | 0.25    |
| No  | 114            |         |           | 134               |         |           |              |         |
| <b>Worked in other school</b>               |                |         |           |                   |         |           |              |         |
| Yes   | 230            |         |           | 252               |         |           | 0.80         | 0.37    |
| No  | 158            |         |           | 152               |         |           |              |         |
| <b>Subjects taught</b>                      |                |         |           |                   |         |           |              |         |
| Science                                     | 155            |         |           | 170               |         |           | 0.37         | 0.54    |
| Humanities and arts                         | 80             |         |           | 80                |         |           | 0.08         | 0.78    |
| Language and literature                     | 108            |         |           | 116               |         |           | 0.08         | 0.78    |
| Entrepreneurship                            | 68             |         |           | 69                |         |           | 0.03         | 0.87    |
| General Studies and communication           | 32             |         |           | 24                |         |           | 1.6          | 0.21    |
| Other                                       | 33             |         |           | 37                |         |           | 0.10         | 0.75    |
| <b>Activities in school during lockdown</b> |                |         |           |                   |         |           |              |         |
| Yes   | 329            |         |           | 331               |         |           | 1.17         | 0.28    |
| No  | 59             |         |           | 73                |         |           |              |         |

## 7. Description and analysis of outcome variables

### 7.1. Conceptual framework

The CPD programme on effective school leadership is offered to head teachers through the online learning platform Moodle. E-learning has several advantages: people save time and can prepare themselves at any location for taking part in the lessons. Therefore, it is often argued that e-learning for adults is easier to combine with working hours, or with family obligations, and is then more able to overcome situational barriers (e.g. time or travel constraints). But also the organizer of the e-learning programme should not make reservations on locations, and can save time by not having to travel to these locations. The organizer can also reach more people in one class because he/she is not restricted to the number of people that fit in the room. E-learning is then less costly than physical gatherings (e.g. no travel costs, no reservation costs, no catering, etc.). Even though face-to-face interactions facilitate better communication among students and instructors and allow for greater clarity while delivering knowledge and skills, the literature also provides growing evidence that highlight online education or e-learning's the convenience and flexibility, especially in the context of self-regulated learning (Tayebinik and Puteh, 2013; Kemp and Grieve, 2014). In fact, recent studies portray blended learning mechanism (combining both face-to-face interactions and e-learning) as the most approach for distance learning courses. (Tayebinik and Puteh, 2013)

**Figure 7.1 Conceptual framework on participation in e-learning (CPD programme) and improved leadership styles, competences and skills**



Note that « More attention for inclusive education and gender, monitoring and evaluation » is left out the Rwandan standards for school leadership, because this is beyond focus of the cost-effectiveness study.

Source Adapted from Garavan et al (2010), p.157.

However, literature also indicates a set of disadvantages. For example, students dropout more frequently from courses due to lack of motivation to learn or because of a suboptimal instructional design. In this respect, Garavan et al. (2010, p.157-158) have built a tractable model of participation in e-learning (Figure 7.1). We summarize from Garavan et al. (2010, p. 158) the most important components/mediators of the conceptual model on participation in e-learning, and adapt the authors' conceptual framework as to fit with our target group of head teachers. Furthermore, we add non-cognitive outcomes to the conceptual framework, the leadership styles, competences and skills, that the e-learning programme wishes to positively influence.

Figure 7.1 presents three orange balloons: the head teachers' job satisfaction, work tasks motivation and general self-efficacy. These orange balloons are the mediators between barriers to participation in e-learning and motivation to learn. Initially, we do not expect over the course of the intervention to alter/improve directly these mediators. However, general self-efficacy may improve because of participation in the CPD programme.

The blue balloon presents the instructional design characteristics e-learning. It is a matter of fact that this instructional design differs between the trainer-led group and peer-led group, whereas trainer-led (D)HTs get assigned a trainer from UR-CE, while the peer-led group get less access to a trainer. We expect a direct relationship between these instructional design differences between trainer-led and peer-led group head teachers and the way participants will experience their e-learning trajectory.

In this respect, it is important to acknowledge some of the literature on mentoring in an online programme, and the role of different interactions. Multiple studies found a significant effect of the teacher's presence on learner engagement and retention (Yen et al., 2018). Price et al. (2007) discuss that successful tutoring includes both cognitive and affective components: students are not only concerned with achieving learning goals but also with satisfying their emotional needs. So it is important to train both tutors and students to compensate for the lack of real interaction and non-verbal information via the use of explicit verbal cues. One of the challenges of offering a course completely online is that one needs to think more consciously about these things. A smile in the classroom can mean a great deal to students and it is a challenge to incorporate similar signs of affections in the online learning environment.

However, teacher presence and support are not the only indicators for online learning engagement and success. Jung and Lee (2018) note that the perceived usefulness and quality of an online learning environment has a significant impact on learning engagement. In this respect it is interesting that Joosten et al. (2019) propose a quality framework for online courses with two main determinants: clarity and richness, clarity being determined by a course' design, organization and support mechanisms and richness coming from the interaction within a course. Anderson (2008) distinguishes three main types of interaction: student-content, student-instructor and student-student. According to Anderson (2008) useful and meaningful learning is possible if one of the three forms of interaction is at a high level. High levels of more than one of these three modes will likely provide a more satisfying educational experience, though these experiences may not be as cost or time effective.

Other features of the CPD programme are similar to trainer-led and peer-led group, however, we might wish to picture as best as possible what these other features are.

## 7.2. Properties and reliability (D)HT and Teacher Questionnaire

The (D)HTs were provided questionnaires and their responses were recorded on the following aspects : (1) Barriers to e-learning (2) Job Satisfaction (3) Work tasks motivation (4) General self-efficacy (5) Motivation to learn (6) Instructional leadership (7) Transformational leadership (8) Leadership overall (9) Trust in school leaders (10) Distributed leadership. Correspondingly, the report also allows a random pair of teachers to assess the school leadership style and competences of their (D)HTs. The main reason why we also wish to collect those responses is to control for socially desirable answers from the (D)HTs on the questionnaires for non-cognitive outcomes on leadership. If the quality of the data allows us to do so, we can additionally use the answers from the teachers to measure impact of the trainer-led vs. peer-led intervention. The teachers' questionnaire covered the topics (6) to (10). Hence, for the topics common to both the (D)HTs and the teachers (excluding for leadership overall), their responses are shown in the preceding sections.

### **7.2.1. Barriers to participate in e-learning**

Perceived barriers or enablers to participate in a course or learning activity as an adult are traditionally classified in three groups: (1) situational barriers; (2) institutional barriers; and (3) dispositional barriers (Rubenson & Desjardins, 2009). Situational barriers deal with the situation of the (deputy) head teachers at the time they follow the CPD programme. For example, as adults, (deputy) head teachers may face difficult challenges with an appropriate work-life balance due to small children or unforeseen events like the COVID-19 pandemic. Time constraints are most frequently mentioned by adults as a situational barrier to participation in a course or learning activity. Other important barriers in this classification are: lack of access to the internet; financial constraints; duration of the CPD programme; or the combination of learning with their job as deputy head teacher.

Institutional barriers are situated at the aggregated level (e.g. school, community, or national). Examples are: Rwandan standards with regard to being a (head) teacher in compulsory education; enrolment standards (having those skills and knowledge necessary to follow the CPD programme); having support from superiors, colleagues and family or friends; public services (e.g. Wi-Fi facilities and other relevant infrastructure).

Dispositional barriers deal with (self-assessed) psychological features that make one doubt on its own abilities to learn, for example, being afraid that you cannot pass the CPD programme; being insecure about the level of difficulty; perceived health and age. Overall we can say that time constraints and internet limitations matter a lot, and that (D)HTs have strong confidence in being able to do the CPD successfully, with support of the family and the school.

Table 7.1 summarizes the sub-questions underlying the three scales on barriers to participating in e-learning. Table 7.1 shows that the majority of (D)HT do not face situational barriers, as more than half answers (strongly) disagree on all statements on situational barriers. However, it is striking and a bit worrisome that more than a third answer that the timing of the CPD programme is a barrier to them (agree or strongly agree) and that also more than a third mentions to not have access to a computer or internet facilities at home (answering agree or strongly agree).

Most (D)HT do not seem to face institutional barriers or dispositional barriers, although still almost a third of them does not receive support from family or friends, and a fifth of them (strongly) agrees that the CPD programme takes too long to finish.

Overall, we can say that time constraints and internet limitations matter a lot, and that (D)HTs have strong confidence in being able to do the CPD successfully, with support of the family and school.

**Table 7.1 Barriers to participate in e-learning**

| Q(n°)                         | Description   | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------------------------------|---|-------------------|----------|---------|-------|----------------|
| <b>Situational barriers</b>   |   |                   |          |         |       |                |
| 3                             | I have financial issues that make it difficult for me to follow the CPD programme.                              | 37%               | 34%      | 14%     | 13%   | 2%             |
| 7                             | The timing of the CPD programme interferes with my job as a (deputy) head teacher.                              | 18%               | 33%      | 13%     | 29%   | 7%             |
| 8                             | The CPD programme takes too long to finish  | 20%               | 44%      | 15%     | 18%   | 2%             |
| 10                            | At home I have no access to a computer or internet facilities.  | 26%               | 32%      | 7%      | 25%   | 10%            |
| 11                            | I have limited time because of my family or children that make it difficult for me to follow the CPD programme. | 36%               | 43%      | 11%     | 9%    | 1%             |
| <b>Institutional barriers</b> |   |                   |          |         |       |                |
| 1                             | I do not have the skills or knowledge necessary to follow the CPD programme.                                    | 51%               | 32%      | 4%      | 11%   | 3%             |
| 5                             | I receive support from superiors to participate in the CPD programme.   | 5%                | 9%       | 10%     | 56%   | 19%            |
| 6                             | I receive support from family or friends to participate in the CPD programme.                                   | 15%               | 16%      | 14%     | 42%   | 12%            |
| 15                            | There are good (other) learning opportunities (apart from the CPD programme) in the neighbourhood of my home.   | 35%               | 33%      | 12%     | 18%   | 2%             |
| <b>Dispositional barriers</b> |   |                   |          |         |       |                |
| 2                             | I am afraid that I cannot pass the CPD programme  | 58%               | 34%      | 3%      | 4%    | 1%             |
| 4                             | I am insecure about the level of difficulty of the CPD programme  | 34%               | 38%      | 16%     | 12%   | 1%             |
| 9                             | I am afraid of participating in e-learning  | 59%               | 33%      | 2%      | 4%    | 2%             |
| 12                            | My health makes it difficult for me to follow the CPD programme.  | 55%               | 39%      | 2%      | 4%    | 0%             |
| 13                            | My age makes it difficult for me to follow the CPD programme.   | 59%               | 34%      | 3%      | 4%    | 1%             |
| 14                            | Personal reasons make it difficult for me to follow the CPD programme.  | 50%               | 41%      | 4%      | 3%    | 2%             |
| 16                            | When I was in basic education, I had good learning experience myself  | 5%                | 14%      | 12%     | 53%   | 17%            |

### 7.2.2. Job satisfaction

Hulpia & Devos (2009) find in their work a link between distributed school leadership and school leaders' job satisfaction. Notwithstanding the limited empirical evidence between these two variables, *"job satisfaction is an important focus of inquiry in educational organisations. Especially, the job satisfaction of teachers is examined in previous research. Surprisingly, school administrators' job satisfaction has been largely neglected and the job satisfaction of school leaders remains an under-explored and unclear domain [...]."*

In our questionnaire, we include two set of questions on job satisfaction. The first question deals with a self-reported scale on the level of satisfaction with the job as (deputy) head teacher.

Q. How satisfied are you with your job as a (deputy) head teacher? Respondents can answer to this question on a six-point Likert Scale going from Very dissatisfied to Very satisfied.

Secondly, we have added a set of 14 statements, taken from Hackman & Oldham (1975), that lead to a scale of overall job satisfaction. Previous research on new teachers' job satisfaction has shown that these questions work well in the context of Rwandan compulsory education (Cabus et al., 2020). These 14 statements are presented below in Table 7.1. Table 7.1 shows the job satisfaction level among the (D)HT with respect to the 14 statements pertaining to job satisfaction. The majority of the (D)HTs respond to most of the 14 statements as being 'satisfied' or 'extremely satisfied'. Over two-thirds of the (D)HTs suggest they are satisfied (or extremely satisfied) with the amount of support and assistance they receive from the school, the amount of job security they have, their interaction with students and colleagues on job front and around two-third of the (D)HTs are happy (satisfied or extremely satisfied) with the amount of personal growth and development they experience from their job.

**Table 7.1 Job Satisfaction**

| <b>Q(n°)</b> | <b>Description</b>  | <b>Extremely dissatisfied</b> | <b>Dissatisfied</b> | <b>Neutral</b> | <b>Satisfied</b> | <b>Extremely Satisfied</b> |
|--------------|---|-------------------------------|---------------------|----------------|------------------|----------------------------|
| <b>1</b>     | The amount of job security I have.  | 1%                            | 6%                  | 12%            | 67%              | 14%                        |
| <b>2</b>     | The amount of pay and extra benefits I have.  | 5%                            | 21%                 | 24%            | 43%              | 7%                         |
| <b>3</b>     | The amount of personal growth and development I get in doing my job as a (deputy) head teacher.   | 2%                            | 11%                 | 15%            | 60%              | 12%                        |
| <b>4</b>     | The students I talk to and work with on my job as a (deputy) head teacher.                        | 1%                            | 2%                  | 8%             | 64%              | 25%                        |
| <b>5</b>     | The degree of respect and fair treatment I receive from colleagues                                | 1%                            | 5%                  | 13%            | 65%              | 16%                        |
| <b>6</b>     | The feeling of worthwhile accomplishment I get from doing my job as a (deputy) head teacher.      | 1%                            | 2%                  | 7%             | 61%              | 30%                        |
| <b>7</b>     | The chance of getting to know other people while on the job                                       | 0%                            | 4%                  | 6%             | 59%              | 30%                        |
| <b>8</b>     | The amount of support and assistance I receive at this school.                                    | 1%                            | 5%                  | 12%            | 63%              | 18%                        |
| <b>9</b>     | The degree to which I am fairly paid for what I contribute to this school.                        | 7%                            | 19%                 | 27%            | 41%              | 6%                         |
| <b>10</b>    | The amount of independent thought and action I can exercise in my job as a (deputy) head teacher. | 2%                            | 8%                  | 15%            | 60%              | 14%                        |
| <b>11</b>    | How secure things look for me in the future in this school  | 1%                            | 3%                  | 10%            | 62%              | 25%                        |
| <b>12</b>    | The chance to help students while at work   | 0%                            | 3%                  | 3%             | 61%              | 33%                        |
| <b>13</b>    | The amount of challenge in my job as a (deputy) head teacher                                      | 6%                            | 29%                 | 29%            | 31%              | 4%                         |
| <b>14</b>    | The overall quality of support and assistance I receive at this school.                           | 1%                            | 9%                  | 11%            | 68%              | 12%                        |

Overall, the level of job satisfaction among the (D)HTs is quite satisfying. On the flipside, however, over a quarter of the (D)HT respondents are unhappy (dissatisfied or extremely dissatisfied) with the amount of pay and extra benefits they have and the degree to which they are fairly paid and over one-third of the respondents are dissatisfied with the amount of challenge they face in their job as (D)HT.

### 7.2.3. Work tasks motivation

Barton (2011) has written a book chapter on what triggers or hampers a teacher to become a head teacher. He argues that "*Understanding [head teachers'] motivation provides insight for administrative preparation programs as they prepare aspiring school leaders* (p.14)."

We have taken a set of 15 questions from Fernet et al. (2008) that load to five scales with regard the work tasks motivation. These five scales are: (1) Intrinsic motivation (questions 1, 5, 10); (2) Identified regulation (questions 2, 12, 14); (3) Introjected regulation (questions 4, 7); (4) External regulation (5, 8, 15); and Amotivation (questions 3, 11, 13). Based on self-determination theory, Fernet et al. (2008) define the concept of intrinsic motivation, extrinsic motivation and amotivation in the following ways: a person to be intrinsically motivated if the person is motivated to perform the task out of the pleasure he derives from his activities; a person is defined as externally motivated if an external factor or incentive determines his motivation to perform a task apart from the task itself. To further expand the concept of external regulation, Fernet et al. (2008) use the concept of external regulation, introjected regulation and identified regulation; external regulation usually motivates an individual to perform a task in lieu of an external reward or to avoid any constraint; introjected regulation takes place when an external demand builds up internal coercion (by influencing anxiety, shame or guilt) within a person and motivates him to perform the task; identified regulation occurs when a person performs a task out of his own sense of duty or responsibility. Finally, a person is referred to as amotivated if he is neither intrinsically nor extrinsically motivated. In other words, he lacks the purpose for engaging in a particular activity.

Previous research done by Cabus et al. (2020) indicates that not all scales performed well in the context of Rwandan compulsory education. It concerns the scales 'Identified regulation' and 'External regulation', and, to fewer extent, also 'Amotivation'. Therefore, it could be considered in the final draft of the questionnaire to only include the scale for 'Intrinsic motivation'; or only to measure an overall scale for work tasks motivation.

As follows we present the set of 15 questions on the work tasks motivation scale, however, note that we have adapted the original scale as to fit the target group of (deputy) head teachers.

Q. Why are you a (deputy) head teacher? Please indicate to which extent you agree with the statements below.

Table 7.2 summarizes the sub-questions underlying the five scales on work tasks motivation. Identified motivation plays the most prominent role in influencing work motivation of the (D)HTs. Over 80 percent the (D)HT respondents agree (mostly agree or completely agree) with the statements corresponding to identified motivation. Particularly, over 95 percent of the (D)HT respondents believe that their job is important for the pupil's academic success. In context of intrinsic motivation, more than half of the (D)HTs respond as '(mostly) agree' corresponding to the statements under intrinsic motivation. In context of identified motivation, over two-third of the respondents agree with the given statements and over 90 percent of the respondents like their job as a (D)HT.

Over 60 percent of the respondents are driven by introjected motivation (mostly agree or completely agree) to perform their work. Table 7.2 further confirms that over 80 percent of the (D)HT respondents do not agree (strongly disagree or mostly disagree) corresponding to the statements under amotivation. In context of external motivation, over 65 percent of the respondents admit (mostly agrees or completely agrees) that they execute the task because their job demands it from them. Over half of the respondents deny (strongly disagree or disagree) financial incentive to be the motivation behind their task. Over 60 percent of the respondents deny (strongly disagree or disagree) that they do their job out of obligation. Overall, the results report genuine motivation on the (D)HT's part to perform their job.

Table 7.2 Work tasks motivation

| Q(n°)                         | Description   | Completely disagree | Mostly disagree | Neutral | Mostly agree | Completely agree |
|-------------------------------|---|---------------------|-----------------|---------|--------------|------------------|
| <b>Intrinsic motivation</b>   |   |                     |                 |         |              |                  |
| 1                             | Because my job as a (deputy) head teacher is pleasant to carry out                            | 5%                  | 7%              | 12%     | 48%          | 27%              |
| 6                             | Because I find my job as a (deputy) head teacher interesting to do                            | 6%                  | 6%              | 10%     | 53%          | 26%              |
| 10                            | Because I like my job as a (deputy) head teacher.   | 3%                  | 3%              | 3%      | 49%          | 43%              |
| <b>Identified motivation</b>  |   |                     |                 |         |              |                  |
| 2                             | Because my job as (deputy) head teacher enables me to achieve my own work goals               | 2%                  | 5%              | 5%      | 53%          | 35%              |
| 12                            | Because my job as a (deputy) head teacher is important for me.                                | 4%                  | 4%              | 8%      | 53%          | 32%              |
| 14                            | Because I find my job as a (deputy) head teacher important for the academic success of pupils | 1%                  | 1%              | 2%      | 34%          | 62%              |
| <b>Introjected motivation</b> |   |                     |                 |         |              |                  |
| 4                             | Because I would feel guilty if would not do my job as a (deputy) head teacher.                | 13%                 | 12%             | 9%      | 35%          | 30%              |
| 7                             | Because if I don't do my job as a (deputy) head teacher I will feel bad.                      | 12%                 | 12%             | 12%     | 41%          | 23%              |
| <b>External motivation</b>    |   |                     |                 |         |              |                  |
| 5                             | Because I'm paid to be a (deputy) head teacher.   | 29%                 | 22%             | 16%     | 25%          | 8%               |
| 8                             | Because my work demands it from me.   | 7%                  | 10%             | 15%     | 49%          | 20%              |
| 15                            | Because the school obliges me to be a (deputy) head teacher                                   | 35%                 | 28%             | 15%     | 17%          | 5%               |
| <b>Amotivation</b>            |   |                     |                 |         |              |                  |
| 3                             | I don't know, I don't always see the relevance of my job as a (deputy) head teacher           | 64%                 | 21%             | 8%      | 5%           | 1%               |
| 11                            | I used to know why I was a (deputy) head teacher, but I don't see the reason anymore.         | 57%                 | 24%             | 13%     | 4%           | 2%               |
| 13                            | I don't know, sometimes I don't see the purpose of my job as a (deputy) head teacher.         | 74%                 | 19%             | 4%      | 1%           | 1%               |

#### 7.2.4. General self-efficacy

As follows, we define an appropriate scale for self-efficacy within the context of effective school leadership – which is more of an organizational than a task-specific construct. Bandura (1986) explains that self-efficacy varies broadly on three dimensions, namely: (1) the extent to which a respondent can assess the level of task difficulty; (2) the beliefs a respondent holds on whether or not he can successfully perform a particular level of task difficulty; and (3) the extent to which a respondent generalizes his ideas on task difficulty and his ability to perform these tasks across different tasks and situations.

Older research in the field of self-efficacy has focused on (1) and (2). More recently, and within the scope of organizational theory, generalization of respondents' ideas came more into picture. We explore a validated scale on general self-efficacy that was developed by Chen et al. (2001). It consists of 8 questions that build further on older research (Sherer et al., 1982; Sherer & Adams, 1983).

Q. Indicate to which extent the following statements are true. Respondents can answer on a five-point Liker scale going from Strongly disagree to Strongly agree.

Table 7.3 shows an overall positive response of the (D)HTs corresponding to the statements pertaining to self-efficacy. The majority of the respondents agree with the statements relating to self-efficacy and a nominal fraction of the population marking 'strongly disagree' or 'disagree' corresponding to these statements. 95 percent of the (D)HT respondents admit (agree or strongly agree) that they are sure to accomplish any difficult task they would face in their job and are confident to perform effectively on different tasks required for the job. 95 percent of the respondents also believe that they would succeed in their job as a (D)HT. A negligible proportion of responses is recorded 'strongly disagree' and 'disagree' corresponding to these statements.

**Table 7.3 General self-efficacy**

| Q(n°) | Description   | Strongly<br>disagree | Disagree | Neutral | Agree | Strongly<br>agree |
|-------|---|----------------------|----------|---------|-------|-------------------|
| 1     | I will be able to achieve most of the goals that I have set for myself as a (deputy) head teacher.          | 1%                   | 2%       | 2%      | 51%   | 44%               |
| 2     | When facing difficult tasks in my job as a (deputy) head teacher, I am certain that I will accomplish them  | 0%                   | 2%       | 3%      | 58%   | 37%               |
| 3     | In general, I think that I can obtain the school leadership standards that are important to me.             | 1%                   | 1%       | 4%      | 58%   | 36%               |
| 4     | I believe I can succeed in the tasks as a (deputy) head teacher to which I set my mind                      | 0%                   | 1%       | 3%      | 46%   | 50%               |
| 5     | I will be able to successfully overcome many challenges in my job as a (deputy) head teacher.               | 1%                   | 2%       | 4%      | 57%   | 37%               |
| 6     | I am confident that I can perform effectively on many different tasks in my job as a (deputy) head teacher. | 0%                   | 2%       | 1%      | 56%   | 42%               |
| 7     | Compared to other (deputy) head teachers, I can do most tasks in my job very well.                          | 1%                   | 4%       | 14%     | 54%   | 28%               |
| 8     | Even when things are tough in my job as a (deputy) head teacher, I can perform quite well                   | 0%                   | 2%       | 4%      | 67%   | 27%               |

### 7.2.5. Motivation to learn

A validated instrument for the scale motivation to learn can be retrieved from Dunn et al. (2018). The authors have developed the Behavioral Intent Questionnaire (BIQ), measuring 6 scales on this topic and accounting for respondents' intentions toward learning. We have adapted the questions to fit the target group. The 6 scales are: attitude towards learning (ATT); behavioural intention to learn (BI); perceived ease of use of the CPD programme (EOU); perceived usefulness of the learned material in the CPD programme (PU); perceived behavioural control (PBC); subjective norms (SN).

Q. Indicate to which extent the following statements are true. Respondents can answer on a five-point Liker scale going from Strongly disagree to Strongly agree. Table 7.4 summarizes the sub-questions underlying the six scales on motivation to learn. In the context of attitude towards learning, even though majority of the participants consider participating in a course and learning activity is a good idea (agree and strongly agree), on contrary, over 60 percent of the respondents deny (strongly disagree or disagree) that they find it pleasant to participate in a course of learning activity. Despite having positive response in terms of self-efficacy as demonstrated by Table 7.3,

Table 7.4 shows that the majority of the respondents still possess a positive perception towards participating in the CPD program, as demonstrated by the extent to with they agree with the statements under behavioral intention to learn, perceived ease of use of CPD, perceived behavioral control and subjective norm. More than half of the respondents deny (strongly disagree or disagree) that they participate in the CPD because their colleague will be participating, as stated under subjective norm. This indeed indicates the (D)HTs' genuine motivation to participate in the CPD program. However, one of the issues of concern is many respondents consider affordability as a major impediment to the program participation as more than half of the respondents deny (strongly disagree or disagree) that they have enough money to participate in the program, under perceived behavioral control. This is interesting as in principle everything is paid for. It is however possible that the respondents mean non-monetary costs such as the time investment.

**Table 7.4 Motivation to learn**

| Q(n°)  | Description   | Strongly<br>disagree | Disagree | Neutral | Agree | Strongly<br>agree |
|--|---|----------------------|----------|---------|-------|-------------------|
| <b>Attitude towards learning</b>                           |   |                      |          |         |       |                   |
| 16   | Participating in a course or learning activity is a good idea.  | 1%                   | 0%       | 0%      | 31%   | 68%               |
| 17   | It is not a good idea to participate in a course or learning activity.  | 79%                  | 13%      | 1%      | 4%    | 3%                |
| 18   | I participate in a course or learning activity because I love studying.   | 7%                   | 8%       | 11%     | 45%   | 29%               |
| 19   | I find it pleasant to participate in a course or learning activity.   | 52%                  | 11%      | 5%      | 18%   | 14%               |
| <b>Behavioral intention to learn</b>                       |   |                      |          |         |       |                   |
| 10   | My colleagues and friends support my participation in the CPD programme.  | 2%                   | 4%       | 16%     | 51%   | 26%               |
| 15   | I expect that I can use the things I have learned in the next months in my job as a (deputy) head teacher.      | 0%                   | 3%       | 3%      | 44%   | 51%               |
| <b>Perceived ease of use of CPD (EOU)</b>                  |   |                      |          |         |       |                   |
| 2  | The CPD programme will be easy to study.  | 1%                   | 6%       | 21%     | 57%   | 14%               |
| 6  | My superiors support my participation in the CPD programme.   | 0%                   | 1%       | 7%      | 47%   | 44%               |
| 12   | I have access to facilities, like a computer, internet, in order to participate in the CPD programme.           | 3%                   | 15%      | 11%     | 46%   | 25%               |
| <b>Perceived usefulness of the learned material in CPD</b> |   |                      |          |         |       |                   |
| 1  | Thanks to the CPD programme I will better perform my job as a (deputy) head teacher                             | 0%                   | 1%       | 0%      | 29%   | 70%               |
| 5  | Thanks to the CPD programme I will be better prepared for my job as a (deputy) head teacher.                    | 0%                   | 2%       | 1%      | 42%   | 56%               |
| 9  | I intend to use the things I have learned in the CPD programme frequently in my job as a (deputy) head teacher. | 0%                   | 1%       | 1%      | 31%   | 66%               |
| <b>Perceived behavioral control</b>                        |   |                      |          |         |       |                   |
| 4  | I have the skills and knowledge necessary to participate in the CPD programme                                   | 2%                   | 5%       | 7%      | 52%   | 35%               |
| 8  | I find my participation in the CPD programme useful for my job as a (deputy) head teacher.                      | 0%                   | 0%       | 1%      | 35%   | 64%               |
| 13   | I have enough money to participate in the CPD programme.  | 22%                  | 32%      | 28%     | 14%   | 3%                |
| <b>Subjective norm</b>                                     |   |                      |          |         |       |                   |
| 3  | I will participate in the CPD programme because other (deputy) head teachers do it too.                         | 20%                  | 35%      | 9%      | 23%   | 13%               |
| 7  | I decide how and when I participate in the CPD programme  | 2%                   | 6%       | 5%      | 56%   | 31%               |
| 11   | I expect to easily use the things I have learned in the CPD programme in my job as a (deputy) head teacher.     | 0%                   | 2%       | 3%      | 49%   | 46%               |

### 7.2.6. Instructional leadership

Schools with strong instructional leadership are ought to have “*a learning climate free of disruption, a system of clear teaching objectives, and high teacher expectations for students*” (Robinson et al., 2007, p.638). Louis et al. (2010) provide a list of validated questions with regard to instructional leadership.

Q. During the last 12 months, on average, how often did you conduct the following activities at your school. Respondents can answer this question on a scale using Never; Less than once a month; Once a month; Every two weeks; Once a week; Several times a week; and Every day.

Table 7.5 combines the responses of the DHTs and the teachers corresponding to the statements under instructional leadership. The general trend shows that (D)HTs tend to overestimate the occurrence frequency of the activities stated under instructional leadership to a large extent in comparison with the answers of the teachers in certain cases. For instance, while over 60 percent of the (D)HTs claim to observe the classroom instruction of the teachers several times a week or every day, less than 10 percent of the teachers indicate this high frequency. Similarly, while over 60 percent of the (D)HTs claim to provide feedback to the teachers on their classroom behaviour or classroom management and give ideas to improve on their instructions several times a week or every day, less than one-fifth of the teachers indicate these frequencies.

**Table 7.5 Instructional leadership**

| Q(n°) | Description  | Current function | Never | Less than once a month | Once a month | Every two weeks | Once a week | Several times a week | Every day |
|-------|--|------------------|-------|------------------------|--------------|-----------------|-------------|----------------------|-----------|
| 1     | Having discussions on instructional issues with teachers.  | (D)HT            | 1%    | 1%                     | 17%          | 8%              | 17%         | 39%                  | 16%       |
|       | Having discussions on instructional issues with the (deputy) head teacher                                      | Teacher          | 3%    | 10%                    | 30%          | 12%             | 26%         | 14%                  | 4%        |
| 2     | Observing classroom instruction of teachers.   | (D)HT            | 1%    | 2%                     | 12%          | 9%              | 15%         | 41%                  | 21%       |
|       | The (deputy) head teacher observed my classroom instruction.   | Teacher          | 5%    | 17%                    | 39%          | 14%             | 16%         | 8%                   | 1%        |
| 3     | Attending teacher-planning meetings.   | (D)HT            | 1%    | 5%                     | 32%          | 13%             | 22%         | 19%                  | 7%        |
|       | Attending teacher-planning meetings  | Teacher          | 8%    | 21%                    | 28%          | 12%             | 19%         | 8%                   | 4%        |
| 4     | Giving feedback to teachers on how to improve classroom behavior or classroom management.                      | (D)HT            | 0%    | 1%                     | 10%          | 7%              | 14%         | 42%                  | 26%       |
|       | Received feedback from the (deputy) head teacher on how to improve classroom behavior or classroom management. | Teacher          | 5%    | 15%                    | 30%          | 13%             | 19%         | 13%                  | 5%        |
| 5     | Giving ideas to teachers for how to improve instruction.   | (D)HT            | 1%    | 0%                     | 10%          | 7%              | 13%         | 39%                  | 30%       |
|       | Received ideas from the (deputy) head teacher on how to improve instruction.                                   | Teacher          | 4%    | 14%                    | 31%          | 13%             | 20%         | 13%                  | 5%        |

### 7.2.7. Transformational leadership

Transformational leadership is defined as “...a process where leaders and their followers raise one another to higher levels of morality and motivation (Burns, 1978, p. 20).” It implies that school leaders have the ability “to prompt individuals to want to change and improve (Eliophotou-Menon & Ioannou, 2016, p.13).” Theory on transformational leadership lead to a solid body of empirical evidence, frequently using the Multifactor Leadership Questionnaire (MLQ), developed by Bass & Avolio (1994).<sup>1</sup> The MLQ measures transformational leadership using a list of 21 questions that load to 7 scales.<sup>2</sup> (1) Idealized influence (the degree to which teachers consider school leaders to be trustworthy, with charisma, a clear and attainable mission, and a vision for the organization); (2) Inspirational motivation (actual leader behavior characterized by values and a sense of purpose); (3) Intellectual stimulation (school leaders encourage teachers to be creative and innovative so that they adopt a critical stance in relation to prevalent assumptions and traditions); (4) Individual consideration (school leaders focus on individual needs and deal with teachers on a one-to-one basis); (5) Contingent reward (reward those teachers that meet identified goals); (6) Management-by-exception (school leaders delegate power to teachers and only exceptionally interfere, for example, whenever predetermined objectives are not met); and (7) Laissez-faire leadership (a school leadership style that leaves (almost) everything to the teachers).

Q. Judge how frequently each statement fits you. Respondents can answer this question on a scale using Not at all; Once in a while; Sometimes; Fairly often; and Frequently, if not always. The word others may mean the teachers and children in your school or other school members.

Table 7.6 combines the responses of the DHTs and the teachers corresponding to different scales under Transformational leadership. Considering idealized influence, over 90 percent of the (D)HTs believe that they make the teachers feel good at school and the teachers believe in them and are proud to be associated with them. Considering the teachers' responses, somewhere between 80 percent to 90 percent of the teachers admit (often or always) that they believe in their (D)HT and are often proud to be associated with their (D)HT. Over 60 percent of the teachers agree that the (D)HT make them feel good at school. Thus, in case of idealized influence, even though majority of the (D)HTs and the teachers agree with the statements, the proportion of (D)HTs agreeing to the statements is higher than that of the teachers. A similar trend is observed for the questions corresponding to inspirational motivation and intellectual stimulation. Over 90 percent of the (D)HTs agree (often and always) to the questions associated with inspirational motivation whereas around 75 percent of the teachers agree to the corresponding statements. Similarly, under intellectual stimulation, while over 90 percent of the DHTs agree with all the statements, the corresponding positive responses from around 60 percent of the teachers. So the positive response rate of the (D)HTs and the teachers are quite similar corresponding to the statements under management by exception.

<sup>1</sup> These authors frequently placed transformational leadership among other leadership styles: transactional leadership, passive/avoidant behaviours, and outcomes of leadership. Note that Mindgarden has a patent on using the questionnaire and a \$125 fee should be paid to Mindgarden whenever researchers wish to use the MLQ.

<sup>2</sup> The book chapter of Eliophotou-Menon & Ioannou (2016) provides definitions for four of seven scales, namely: Idealized influence; Inspirational motivation; (3) Intellectual stimulation; (4) Individual consideration. Scales that capture motivational aspects of the leadership are put in one scale: Inspirational motivation (the behavior of the leader which serves as a source of inspiration for followers by providing them with meaning and challenge).

Table 7.6 Transformational leadership

| Q(n°)                           | Description  | Current function | Not at all | Once in a while | Sometimes | Often | Always |
|---------------------------------|--|------------------|------------|-----------------|-----------|-------|--------|
| <b>Idealized influence</b>      |  |                  |            |                 |           |       |        |
| 1                               | I make sure that school members (e.g. teachers, students) feel good to be around me.   | (D)HT            | 0%         | 0%              | 7%        | 44%   | 48%    |
|                                 | The (deputy) head teacher makes me and my colleagues feel good at school.  | Teacher          | 2%         | 7%              | 26%       | 41%   | 24%    |
| 8                               | School members (e.g. teachers, students) believe in me.  | (D)HT            | 0%         | 0%              | 7%        | 56%   | 35%    |
|                                 | Me and my colleagues believe in the (deputy) head teacher.   | Teacher          | 1%         | 6%              | 10%       | 47%   | 36%    |
| 15                              | School members (e.g. teachers, students) are proud to be associated with me  | (D)HT            | 0%         | 1%              | 9%        | 53%   | 37%    |
|                                 | Me and my colleagues are proud to be associated with the (deputy) head teacher.  | Teacher          | 1%         | 4%              | 9%        | 47%   | 39%    |
| <b>Inspirational motivation</b> |  |                  |            |                 |           |       |        |
| 2                               | I express with a few simple words what we could and should do.   | (D)HT            | 0%         | 1%              | 10%       | 52%   | 37%    |
|                                 | The (deputy) head teacher expresses with a few simple words what we can and should do.   | Teacher          | 2%         | 4%              | 15%       | 43%   | 35%    |
| 9                               | I provide positive images about what the school can look like in the future and what we should do to achieve that.                           | (D)HT            | 1%         | 0%              | 5%        | 49%   | 45%    |
|                                 | The (deputy) head teacher provides a positive image about what the school should look like in the future and what we can do to achieve that. | Teacher          | 4%         | 6%              | 14%       | 45%   | 30%    |
| 16                              | I make sure school members (e.g. teachers, students) find their work meaningful.   | (D)HT            | 0%         | 1%              | 3%        | 47%   | 49%    |
|                                 | The (deputy) head teacher helps me, and my colleagues find meaning in our work.  | Teacher          | 1%         | 1%              | 10%       | 48%   | 39%    |
| <b>Intellectual stimulation</b> |  |                  |            |                 |           |       |        |
| 3                               | I help school members (e.g. teachers, students) to think about problems in a different way.  | (D)HT            | 0%         | 1%              | 13%       | 51%   | 35%    |
|                                 | The (deputy) head teacher enables me and my colleagues to think about problems in new ways.  | Teacher          | 5%         | 7%              | 27%       | 41%   | 20%    |
| 10                              | I help school members (e.g. teachers, students) to look at challenging things in a new way.  | (D)HT            | 0%         | 1%              | 6%        | 49%   | 44%    |
|                                 | The (deputy) head teacher helps me and my colleagues to look at challenging thing in a new way..   | Teacher          | 3%         | 7%              | 24%       | 43%   | 24%    |
| 17                              | I challenge school members (e.g. teachers, students) to rethink their ideas.   | (D)HT            | 3%         | 3%              | 14%       | 53%   | 26%    |

|                                 |   |         |     |     |     |     |     |
|---------------------------------|---|---------|-----|-----|-----|-----|-----|
|                                 | The (deputy) head teacher challenges me and my colleagues to rethink our ideas.   | Teacher | 6%  | 9%  | 24% | 42% | 19% |
| <b>Individual consideration</b> |   |         |     |     |     |     |     |
| <b>4</b>                        | I help school members (e.g. teachers, students) develop themselves.   | (D)HT   | 1%  | 3%  | 22% | 48% | 26% |
|                                 | The (deputy) head teacher helps me and my colleagues to develop ourselves.  | Teacher | 18% | 13% | 27% | 28% | 13% |
| <b>11</b>                       | I let school members (e.g. teachers, students) know how I think they are doing.   | (D)HT   | 10% | 6%  | 20% | 43% | 21% |
|                                 | The (deputy) head teacher lets me and my colleagues know how he/she thinks we are doing.  | Teacher | 7%  | 11% | 23% | 37% | 22% |
| <b>18</b>                       | I give personal attention to school members (e.g. teachers, students) with special needs (e.g.: disability, emotional support, etc.). | (D)HT   | 2%  | 2%  | 9%  | 44% | 43% |
|                                 | The (deputy) head teacher gives personal attention to me and my colleagues who need special attention.                                | Teacher | 9%  | 9%  | 17% | 40% | 24% |
| <b>Management by exception</b>  |   |         |     |     |     |     |     |
| <b>6</b>                        | I am satisfied when school members (e.g. teachers, students) meet agreed-upon standards.  | (D)HT   | 0%  | 1%  | 4%  | 28% | 67% |
|                                 | The (deputy) head teacher is satisfied when me and my colleagues meet agreed-upon standards.  | Teacher | 1%  | 3%  | 8%  | 50% | 38% |
| <b>13</b>                       | As long as things go well, I do not try to change anything.   | (D)HT   | 12% | 12% | 26% | 33% | 17% |
|                                 | As long as things go well, the (deputy) head teacher does not try to change anything.   | Teacher | 10% | 15% | 23% | 37% | 15% |
| <b>20</b>                       | I tell school members (e.g. teachers, students) what the minimum standards are for their work.  | (D)HT   | 1%  | 2%  | 8%  | 48% | 41% |
|                                 | The (deputy) head teacher tells me and my colleagues what the minimum standards are for our work.                                     | Teacher | 4%  | 4%  | 12% | 49% | 31% |
| <b>Laissez faire leadership</b> |   |         |     |     |     |     |     |
| <b>7</b>                        | I am happy when school members (e.g. teachers, students) always work as usual.  | (D)HT   | 3%  | 6%  | 5%  | 28% | 59% |
|                                 | The (deputy) head teacher is happy when me and my colleagues do our work as usual.  | Teacher | 28% | 17% | 17% | 24% | 13% |
| <b>14</b>                       | I am fine with whatever school members (e.g. teachers, students) want to do.  | (D)HT   | 17% | 16% | 39% | 22% | 6%  |
|                                 | The (deputy) head teacher is fine with whatever me and my colleagues want to do.  | Teacher | 13% | 12% | 29% | 30% | 15% |
| <b>21</b>                       | I only ask of school members (e.g. teachers, students) what is absolutely essential.  | (D)HT   | 12% | 13% | 26% | 36% | 13% |
|                                 |   | Teacher | N/A | N/A | N/A | N/A | N/A |

| Contingent reward |  |         |     |     |     |     |     |
|-------------------|--|---------|-----|-----|-----|-----|-----|
| 5                 | I tell school members (e.g. teachers, students) what to do if they want to be rewarded for their work.             | (D)HT   | 1%  | 1%  | 12% | 46% | 40% |
|                   | The (deputy) head teacher tells me and my colleagues what to do if we want to be rewarded for their work.          | Teacher | 2%  | 3%  | 11% | 51% | 33% |
| 12                | I reward it when school members (e.g. teachers, students) reach their goals.                                       | (D)HT   | 1%  | 5%  | 31% | 40% | 24% |
|                   | The (deputy) head teacher rewards it when me and my colleagues reach our goals.                                    | Teacher | 38% | 12% | 20% | 19% | 10% |
| 19                | I make clear that school members (e.g. teachers, students) will be positively rewarded for what they accomplish.   | (D)HT   | 0%  | 2%  | 8%  | 52% | 38% |
|                   | The (deputy) head teacher tells me and my colleagues that we will be positively rewarded when we accomplish tasks. | Teacher | 36% | 11% | 19% | 23% | 11% |

However, the responses from the (D)HTs and the teachers are strikingly different corresponding to certain statements under individual consideration, laissez faire leadership and contingent reward. Considering individual consideration, while over 70 percent of the DHTs agree that they help school members (students, teachers, etc) develop themselves, around only 40 percent of the teachers agree to it and around 30 percent of the teachers disagree (stating not at all or once in a while).

Under laissez-faire leadership, while over 85 percent of the DHT respondents state (often or always) that they are happy when school members work as usual, only around 35 percent of the teachers actually agree to it. While less than 30 percent of the (D)HTs state that they are happy with whatever the teachers want to do, 45 percent of the teachers agree to the statement.

Moving on to contingent reward, more than 80 percent of the (D)HTs and the teachers agree that the (D)HTs tell the teachers what the teachers must do if they want to be rewarded. Surprisingly, even though over 60 percent of the DHTs agree that they reward the teachers if they achieve something, less than 30 percent of the teachers agree to it. Moreover, over 80 percent of the (D)HTs claim to make it clear to the teachers that they will be rewarded when they achieve something, approximately 30 percent of the teachers comply with the statement.

#### 7.2.8. Leadership overall

Robinson et al. (2007, p.656) summarises five groupings or leadership dimensions based on a systematic review and meta-analysis of the previous literature. The authors argue that five dimensions could be derived from 199 listed survey items or constructs in their study. These five leadership dimensions with definitions are taken from Robinson et al. (2008, p.656) and summarised in. In the final column we align these five dimensions of Robinson et al. (2007) to the Rwandan five national school leadership standards.

**Table 7.7 Leadership dimensions**

| Leadership dimensions  | Definition   | Rwandan five national school leadership standards                       |
|--|--|---|
| D1) Establishing goals and expectations                                | Includes the setting, communicating, and monitoring of expectations learning goals, standards, and expectations, and the involvement of staff and others in the process so that there is clarity and consensus about goals.  | Leading learning, also by working with parents and the local community. |
| D2) Strategic resourcing   | Involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment.   | Strategic direction for the school.                                     |
| D3) Planning, coordinating, and evaluating teaching and the curriculum | Direct involvement in the support and evaluation of teaching through regular classroom visits provision of formative and summative feedback to teachers. Direct oversight of curriculum through school wide coordination across classes and year levels and alignment to school goals. | Managing the school as an organization; leading teaching.               |
| D4) Promoting and participating in teacher learning and development    | Leadership that not only promotes but directly participates with teachers in formal or informal professional learning.   | Leading teaching.   |
| D5) Ensuring an orderly and supportive environment                     | Protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside classrooms.  | Managing the school as an organization.                                 |

Source Robinson et al. (2008), p. 656.

As indicated in Table 7.7, the five dimensions of Robinson et al. (2007) fit quite well with the five national school leadership standards in Rwanda. Correspondingly, we include questions in line with these leadership dimensions in the questionnaire. In particular, we ask the respondents to reflect on several items of the leadership dimensions and the needs that the (deputy) head teachers have for formally organized support in improving their competencies in these items (for example, by offering the CPD program on effective school leadership).

Q. For each of the competences listed below, please indicate the degree to which you currently need formally organized support or learning activities as to improve these competencies. Respondents can answer these questions using No need at present; Low level of need; Moderate level of need; and High level of need.

|  | <b>Dimension</b> |
|--|------------------|
| 1. Enforcing school rules or code of conduct.                    | D5               |
| 2. Implementing the competence-based curriculum                  | D3               |
| 3. Developing and implementing a school improvement plan         | D3               |
| 4. Defining standards for instructional practices for teachers.  | D1               |
| 5. Providing support and feedback to teachers.                   | D4               |
| 6. Understanding pedagogical and administrative documents.       | D5               |
| 7. Financial management of the school (e.g. how money is spent). | D5               |
| 8. Involving teachers in school-wide decision-making.            | D3               |
| 9. Working with parents and the community.                       | D1               |
| 10. Strategic teaching staff recruitment.                        | D2               |

Table 7.8 indicates the (D)HTs need for support on certain leadership aspects. Note that since the answer categories are different for the (D)HT questionnaire and the teachers questionnaire, we unfortunately cannot combine these two tables into one. Around 70 percent of the (D)HTs indicate that they require moderate to high level of support in implementing competence-based curriculum, developing and implementing school improvement plan, defining standards for instructional practices for teachers, financial management of the school and strategic teaching staff recruitment.

**Table 7.8 Leadership overall ((D)HT's perspective)**

| Q(n°) | Description   | No support needed at present | Low level of support needed | Moderate level of support needed | High level of support needed |
|-------|---|------------------------------|-----------------------------|----------------------------------|------------------------------|
| 1     | Enforcing school rules or code of conduct.                    | 22%                          | 24%                         | 36%                              | 19%                          |
| 2     | Implementing the competence-based curriculum                  | 9%                           | 23%                         | 38%                              | 30%                          |
| 3     | Developing and implementing a school improvement plan         | 6%                           | 19%                         | 41%                              | 34%                          |
| 4     | Defining standards for instructional practices for teachers.  | 6%                           | 24%                         | 43%                              | 27%                          |
| 5     | Providing support and feedback to teachers.                   | 18%                          | 28%                         | 35%                              | 19%                          |
| 6     | Understanding pedagogical and administrative documents        | 17%                          | 27%                         | 38%                              | 18%                          |
| 7     | Financial management of the school (e.g. how money is spent). | 10%                          | 21%                         | 37%                              | 32%                          |
| 8     | Involving teachers in school-wide decision-making.            | 28%                          | 26%                         | 33%                              | 13%                          |
| 9     | Working with parents and the community.                       | 22%                          | 26%                         | 33%                              | 19%                          |
| 10    | Strategic teaching staff recruitment.                         | 12%                          | 21%                         | 33%                              | 34%                          |

Table 7.9 summarizes the responses of the teachers corresponding to the statements pertaining to their (D)HT's overall leadership dimensions. Over 95 percent of the respondents comply (agree or strongly agree) that the (D)HTs enforce school rules or code of conduct and ensures that the teachers implement competence-based course curriculum. Over 80 percent of the teachers agree that the (D)HTs implement school improvement plan, provides support and feedback to the teachers, defines the standard for instructional practices for teachers, understands pedagogical and administrative documents and works with parents and community.

**Table 7.9 Leadership overall (Teachers' perspective)**

| Q(n°) | Description   | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------|---|-------------------|----------|---------|-------|----------------|
| 1     | The (deputy) head teacher enforces school rules or code of conduct.                                     | 0%                | 2%       | 3%      | 55%   | 40%            |
| 2     | The (deputy) head teacher ensures that teachers implement the competence-based curriculum.              | 1%                | 2%       | 2%      | 47%   | 48%            |
| 3     | The (deputy) head teacher develops and implements a school improvement plan.                            | 1%                | 6%       | 6%      | 54%   | 33%            |
| 4     | The (deputy) head teacher defines standards for instructional practices for teachers.                   | 2%                | 7%       | 8%      | 57%   | 26%            |
| 5     | The (deputy) head teacher provides support and feedback to teachers.                                    | 2%                | 4%       | 3%      | 49%   | 43%            |
| 6     | The (deputy) head teacher understands pedagogical and administrative documents.                         | 1%                | 3%       | 10%     | 44%   | 42%            |
| 7     | The (deputy) head teacher knows about the financial management of the school (e.g. how money is spent). | 4%                | 10%      | 35%     | 33%   | 18%            |
| 8     | The (deputy) head teacher involves teachers in school-wide decision-making.                             | 4%                | 11%      | 8%      | 45%   | 33%            |
| 9     | The (deputy) head teacher works with parents and the community.   | 2%                | 3%       | 6%      | 48%   | 42%            |

### 7.2.9. Trust in school leader

With regard to the fifth dimension of leadership as mentioned in Table 7.7, the orderly and supportive environment, Louis et al. (2010) developed a scale that measures trust in the school leader. In fact, Louis et al. (2010) include in their study questions that were developed by Tschannen-Moran (2004). Tschannen-Moran (2004) actually claims that “when well-intentioned [head teachers] fail to earn the trust of their [school staff] and larger community, their vision is doomed to frustration and failure.” Louis et al. (2010) confirm, and cite that “trust in the decision-making capacity of the organization’s leadership predicted overall satisfaction with the organization better than did employee participation in decision making.” Furthermore, trust in the school leader is positively correlated with school culture (Bryk & Schneider, 2002; Louis, 2007; Tschannen-Moran, 2004); with the engagement of teachers to their school and students (Tarter et al. 1989); with the likelihood that school improvement plans are (collectively) executed; and with teachers’ perceptions on how good a (deputy) head teacher can perform technical and transformational leadership functions (Daly & Chrispeels, 2008).

Further, Jung & Avolio (2000) and Yukl (1999) argue that trust in the head teacher is an important feature of transformational school leadership. Zeinabadi and Rastegarpour (2010) provide evidence that trust is a necessary condition to achieve common goals.

We have coded the five underlying questions of this scale outlined in Louis et al. (2008) and adapted it to fit a questionnaire among (deputy) head teachers. We ask the (deputy) head teachers the extent to which they are able to create an orderly and supportive environment where trust in them is a corner stone. Doing so, we observe that some questions in this scale on 'trust' also relate to other dimensions, reported by Robinson et al. (2007) – see right column in Table below

Q. Indicate to which extent the following statements are true. Respondents can answer on a four-point Likert scale going from Not at all true to Exactly true

Table 7.10 shows that the DHT's responses are more or less consistent to the teachers' responses corresponding to most of the questions under trust in the school leaders. Over 80 percent of the (D)HTs and teachers and teachers agree that the (D)HTs in general possess good intention towards the teachers and the teachers can freely discuss work-related problems with the (D)HTs. However, while over 90 percent of the (D)HTs claim that if they promise something to the teachers, they usually keep it, somewhere around 70 percent of the teachers agree to the statement.

**Table 7.10 Trust in school leader**

| Q(n°) | Description  | Current Function | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------|--|------------------|-------------------|----------|---------|-------|----------------|
| 1     | I make sure that all students in my school get high quality teachers.                                      | (D)HT            | 5%                | 7%       | 16%     | 49%   | 23%            |
|       | The (deputy) head teacher makes sure that all students in my school get high quality teachers.             | Teacher          | 3%                | 8%       | 11%     | 48%   | 30%            |
| 2     | If I promise something to teacher(s), I will keep that promise.  | (D)HT            | 0%                | 0%       | 8%      | 51%   | 41%            |
|       | If the (deputy) head teacher promises something to teacher(s), he/she keeps that promise.                  | Teacher          | 6%                | 11%      | 11%     | 45%   | 26%            |
| 3     | In general, I have good intentions towards the teachers in my school                                       | (D)HT            | 0%                | 1%       | 2%      | 48%   | 49%            |
|       | In general, the (deputy) head teacher has good intentions and motives towards the teachers in this school. | Teacher          | 1%                | 4%       | 10%     | 50%   | 35%            |
| 4     | Teachers in my school can freely discuss work related problems with me                                     | (D)HT            | 0%                | 0%       | 2%      | 47%   | 50%            |
|       | Teachers in this school can freely discuss work related problems with the (deputy) head teacher.           | Teacher          | 2%                | 6%       | 4%      | 46%   | 42%            |

### 7.2.10. Distributed leadership

Further, we have taken a scale on professional community from Louis et al. (2010). A professional community in the school *“includes shared values, a common focus on student learning, collaboration in the development of curriculum and instruction and the purposeful sharing of practices [...]”* As shown below in the right column ‘Dimension’, the questions with regard to the professional community is about streamlining goals and expectations between the school leader and the teachers (D1); and promoting and participating in teacher learning and development (D4). It offers a platform for sharing ideas among the school team on the best way the school could (or should) be managed. This is often referred to as distributed leadership. This concept moves away from the idea that one single individual should manage the school towards the (acknowledgement of the) distribution of leadership among the school team (Hulpia et al., 2009).

Q. Indicate to which extent the following statements are true. Respondents can answer on a four-point Likert scale going from Not true at all to Exactly true.

Table 7.11 combines the DHT and teachers' responses corresponding to the statements relating to distributed leadership. For most of the cases, the DHT's responses are more or less coherent to the teachers' responses. Over 90 percent of the DHTs and teachers agree that the student assessment in their school reflects competence-based curriculum standards. Furthermore, they also agree that teachers in the school support the head teacher in enforcing the code of conduct, take responsibility to improve the school, help to maintain discipline in the entire school instead of focusing solely on own classrooms, ask each other for assistance with their classroom instructions and are given meaningful feedback to their teaching. However, even though only 2 percent of the (D)HTs disagree that they have well-defined learning expectations for all the students, there are 14 percent of the teachers who disagree with the statement.

Table 7.11 Distributed leadership

| Q(n°) |   | Current function | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------|---|------------------|-------------------|----------|---------|-------|----------------|
| 1     | In my school, most teachers share a similar set of values, beliefs, and attitudes related to teaching and learning    | (D)HT            | 2%                | 7%       | 7%      | 65%   | 19%            |
|       | In this school, most teachers share a similar set of values, beliefs, and attitudes related to teaching and learning. | Teacher          | 1%                | 7%       | 4%      | 51%   | 36%            |
| 2     | In my school, we have well-defined learning expectations for all students   | (D)HT            | 0%                | 2%       | 7%      | 67%   | 23%            |
|       | In this school, we have well-defined learning expectations for all students.  | Teacher          | 1%                | 13%      | 6%      | 55%   | 26%            |
| 3     | In my school, student assessment reflects the competence-based curriculum standards.                                  | (D)HT            | 0%                | 3%       | 5%      | 60%   | 32%            |
|       | In this school, student assessment practices reflect the competence-based curriculum standards.                       | Teacher          | 0%                | 1%       | 3%      | 46%   | 50%            |
| 4     | Teachers in my school support the head teacher in enforcing the code of conduct                                       | (D)HT            | 0%                | 3%       | 4%      | 64%   | 30%            |
|       | Teachers in this school support the (deputy) head teacher in enforcing the code of conduct.                           | Teacher          | 0%                | 2%       | 2%      | 49%   | 46%            |
| 5     | Teachers in my school take responsibility for improving the school  | (D)HT            | 0%                | 2%       | 4%      | 67%   | 27%            |
|       | Teachers in this school take responsibility for improving the school.   | Teacher          | 0%                | 4%       | 3%      | 52%   | 41%            |
| 6     | Teachers in my school help maintain discipline in the entire school, not just in their own classroom                  | (D)HT            | 1%                | 2%       | 6%      | 63%   | 27%            |
|       | Teachers in this school help maintain discipline in the entire school, not just in their own classroom.               | Teacher          | 0%                | 2%       | 2%      | 44%   | 52%            |
| 7     | Teachers in my school ask each other for assistance with their classroom instruction                                  | (D)HT            | 0%                | 1%       | 5%      | 68%   | 25%            |
|       | Teachers in this school ask each other for assistance with their classroom instruction.                               | Teacher          | 1%                | 3%       | 2%      | 48%   | 47%            |
| 8     | Teachers in my school observe each other's teaching   | (D)HT            | 1%                | 6%       | 9%      | 64%   | 20%            |
|       | Teachers in this school observe each other's teaching.  | Teacher          | 3%                | 9%       | 4%      | 51%   | 32%            |
| 9     | Teachers in my school are given meaningful feedback to their teaching   | (D)HT            | 0%                | 1%       | 2%      | 59%   | 37%            |
|       | Teachers in this school are given meaningful feedback to their teaching.  | Teacher          | 1%                | 3%       | 2%      | 51%   | 43%            |
| 10    | Teachers in my school exchange curriculum materials with their colleagues   | (D)HT            | 2%                | 3%       | 4%      | 59%   | 32%            |
|       | Teachers in this school exchange curriculum materials with their colleagues.  | Teacher          | 3%                | 6%       | 4%      | 48%   | 40%            |

### 7.3. Discussion of quality of both questionnaires

We have measured several non-cognitive outcome variables by using validated questionnaires from past published research in the field, which we presented in the previous sections. Furthermore, we have conducted a pilot-test to validate and test the questionnaire (See appendix).

For most overall measures, we observe good reliability (see Figure 7.2 for reliability of the (D)HT questionnaire and Figure 7.3 for the reliability of the teachers questionnaire). However, the sub-scales (presented in italics) do not always give such good reliability. Despite the good overall quality of the selected questionnaires, the extensive piloting phase and the professional translation/presentation of the English questions into Kinyarwanda, we still observe poor reliability statistics for some sub-scales of outcome measures, mostly for (D)HT. This is most likely due to the population of study: whereas we conduct the questionnaire among Rwandan (D)HTs and teachers, in most cases the questionnaires have only been validated in the past in Western societies, and, additionally, not necessarily among school leaders or teachers. Only the questionnaire with regard to experienced job stress and burnout of Maslach and Jackson (1981), have been explored in African countries (Rajan & Engelbrecht, 2018). Further, it may be the case that the Rwandan population answered some questions in a socially desired way. Cultural norms and values can influence the way we perceive a question, and, as such, how we provide answer to that question. Furnham (1986) argues that social desirability is a relatively stable, multidimensional trait of persons in very different situations, and, therefore, that answer patterns even could be used to study a populations' view on (ab)normality. We consider this beyond the scope of this study, but this drawback should be taken into account when analysing further results.

Also, interesting to note is that the leadership dimensions that are measured in both the (D)HT questionnaire and in the teachers questionnaire are in general much more reliable in the teachers questionnaire. Except for Establishing goals and expectations (D1), under Distributed Leadership, most scales and subscales are quite ok for the teachers questionnaire, but not so much for the (D)HT questionnaire. For the latter, mostly the overall scales are doing fine, but the subscales not so much. We should keep this in mind and take this into account for the evaluation of the intervention after the post-test.

We argue to keep the outcome measures for further evaluation that have had stable results in the pilot and baseline study. These are the scales that have a reliability of more than 0.6. These scales will be used in Chapter 9 to assess the pre-test outcomes.

Figure 7.2 evaluation of quality (D)HT questionnaire

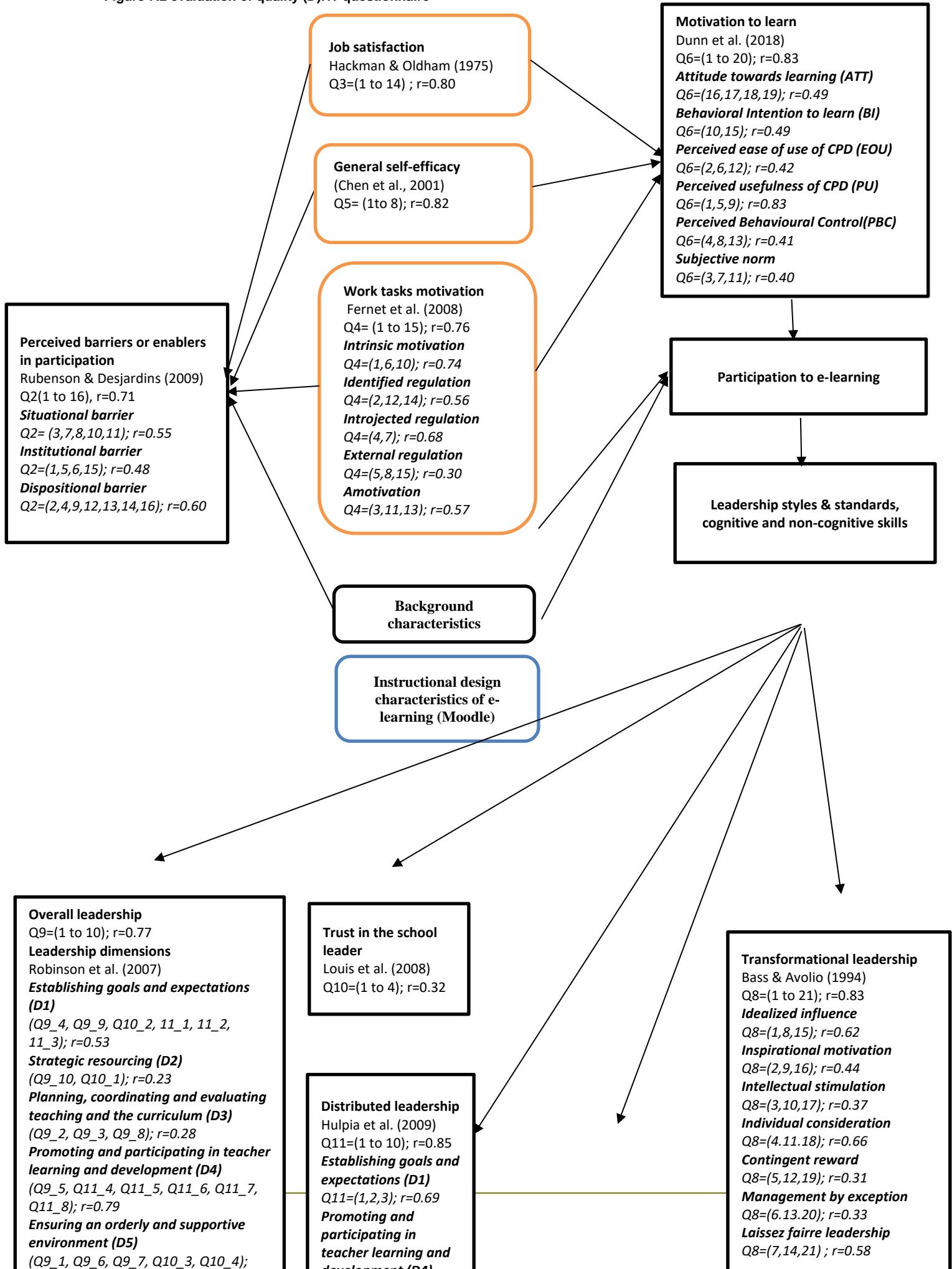
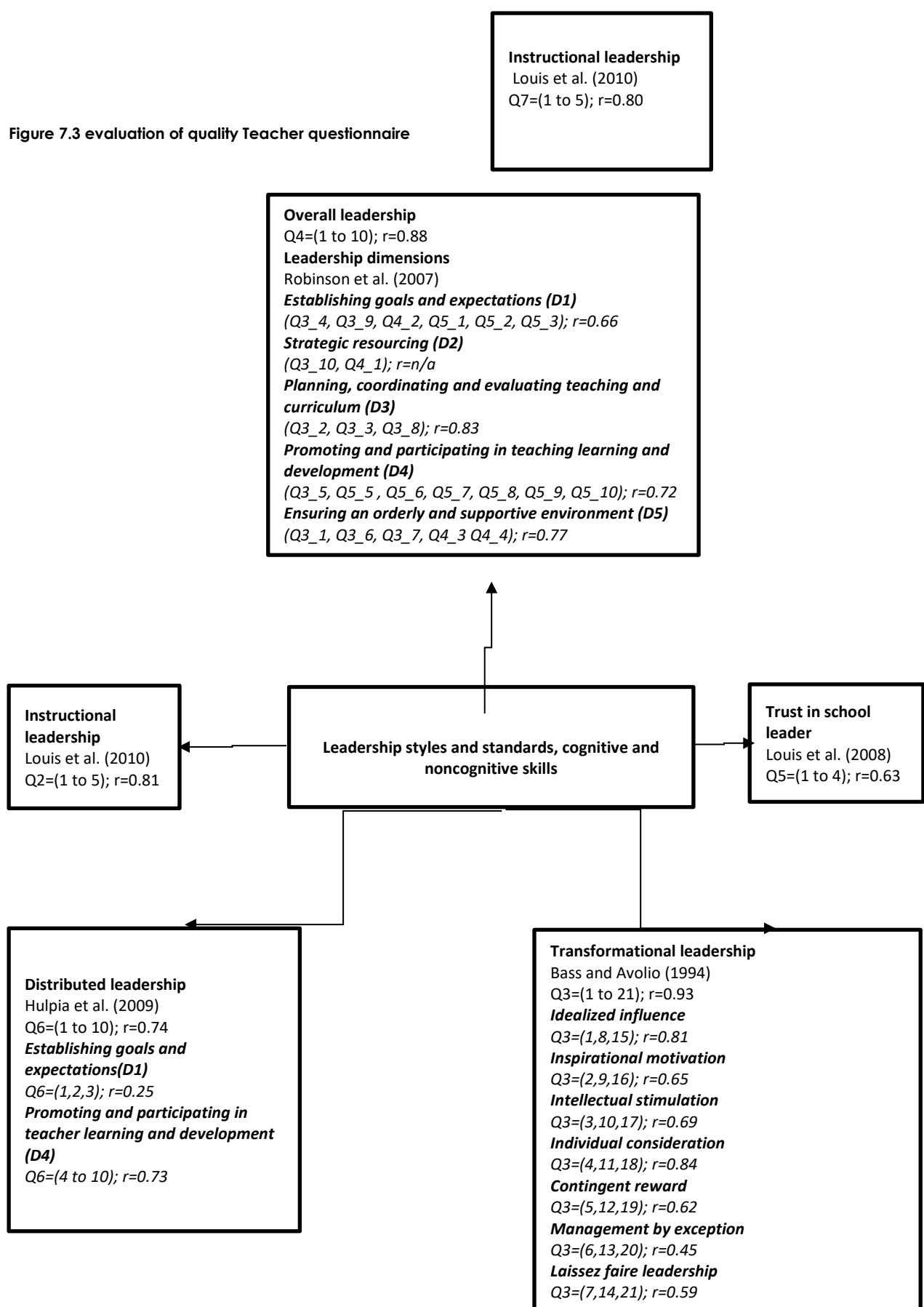


Figure 7.3 evaluation of quality Teacher questionnaire



## 8. Evaluation of pre-treatment outcomes

Table 8.1 presents the mean and standard deviation of the outcome variables together with the mean difference between the trainer-led group and the peer-led group for the (D)HT sample. Table 8.2 presents similar statistics for the teacher sample. T-tests are used for computation of significance levels. The mean is the average of each scale (unstandardized coefficients). We only present T-test statistics for those outcomes that satisfy the quality criteria of being a valid and reliable scale (Section 0).

Even though the (D)HTs in the trainer-led and the peer-led group are similar on average in most of the cases, Table 8.1 shows that the difference in average value with respect to the two groups (D)HTs exists for certain variables: for e-learning barrier, the difference is significant at 3 percent level; particularly for dispositional barrier, the difference is significant at the zero percent level. It is possible that the fact that (D)HTs knew whether they were in the peer-led or trainer-led group may have influenced this. The difference in means with respect to job satisfaction is significant at the 5 % level and that for learning motivation is significant at the 4 % level. For all these significant differences it holds that the treatment group (trainer-led group) has a higher average than the comparison group (peer-led group).

Despite a few significant differences in experienced barriers and motivation, overall, we can conclude that the RCT design succeeds well in making the treatment groups and comparison group comparable.

**Table 8.1 T-test for comparing the pre-test outcome variables (D)HTs in treatment versus comparison group**

| Variable                           | Peer-led Group |         |           | Trainer-led Group |         |           | T-statistic | P-value |
|------------------------------------|----------------|---------|-----------|-------------------|---------|-----------|-------------|---------|
|                                    | N              | Average | Std. Dev. | N                 | Average | Std. Dev. |             |         |
| <b>Elearning barrier</b>           | 217            | 3.78    | 0.45      | 226               | 3.87    | 0.46      | -2.15       | 0.03*   |
| Dispositional barrier              | 217            | 4.17    | 0.54      | 226               | 4.31    | 0.52      | -2.66       | 0.00**  |
| Job satisfaction                   | 217            | 3.74    | 0.47      | 226               | 3.84    | 0.54      | -1.99       | 0.05*   |
| <b>Motivation_overall</b>          | 217            | 3.53    | 0.33      | 226               | 3.53    | -0.34     | 0.00        | 0.99    |
| Intrinsic motivation               | 217            | 3.96    | 0.73      | 226               | 4.00    | 0.71      | -0.64       | 0.52    |
| Introjected regulation             | 217            | 2.43    | 1.11      | 226               | 2.50    | 0.08      | -0.73       | 0.47    |
| Self efficacy                      | 217            | 4.25    | 0.46      | 226               | 4.32    | 0.50      | -1.92       | 0.06    |
| <b>Learning motivation</b>         | 217            | 3.96    | 0.33      | 226               | 4.03    | 0.38      | -2.02       | 0.04*   |
| Perceived usefulness of CPD        | 217            | 4.59    | 0.43      | 226               | 4.61    | 0.51      | -0.46       | 0.65    |
| Instructional leadership           | 217            | 5.32    | 0.94      | 226               | 5.20    | 1.15      | 1.14        | 0.25    |
| <b>Transformational leadership</b> | 217            | 4.05    | 0.38      | 226               | 4.06    | 0.43      | -0.28       | 0.78    |
| Idealized influence                | 217            | 4.31    | 0.48      | 226               | 4.29    | 0.55      | 0.43        | 0.67    |
| Individual consideration           | 217            | 3.92    | 0.66      | 226               | 3.94    | 0.67      | -0.33       | 0.74    |
| Leadership_overall                 | 217            | 2.77    | 0.69      | 226               | 2.65    | 0.80      | 1.75        | 0.08    |
| Distributed leadership             | 217            | 4.14    | 0.43      | 226               | 4.13    | 0.49      | 0.24        | 0.81    |
| Distributed leadership_D1          | 217            | 4.07    | 0.54      | 226               | 4.07    | 0.60      | 0.05        | 0.96    |
| Distributed leadership_D4          | 217            | 4.17    | 0.46      | 226               | 4.16    | 0.03      | 0.31        | 0.76    |
| D4_overall                         | 217            | 3.97    | 0.41      | 226               | 3.94    | 0.45      | 0.66        | 0.51    |

(\*: significance level at between 1 to 5 percent level; \*\* significant at less than 1 percent level)

D=Leadership dimensions; D1=Establishing goals and expectations; D4: Promoting and participating in teacher learning and development

Similar to Table 8.1, Table 8.2 compares the mean value of the (pre-test) outcome variables in the context of the teachers in the treatment and the comparison group. From Table 8.2, it is inferred that the teachers in the treatment and the comparison group are similar to each other on average for all the variables and there is no significant difference between them in terms of any outcome variables under consideration.

**Table 8.2 T-test for comparing the pre-test outcome variables teachers in treatment versus comparison group**

| Variable                    | Peer-led Group |         |           | Trainer-led Group |         |           | T-statistic | P-value |
|-----------------------------|----------------|---------|-----------|-------------------|---------|-----------|-------------|---------|
|                             | N              | Average | Std. Dev. | N                 | Average | Std. Dev. |             |         |
| Instructional leadership    | 388            | 3.80    | 1.21      | 404               | 3.71    | 1.14      | 1.07        | 0.29    |
| Transformational leadership | 388            | 3.62    | 0.63      | 404               | 3.61    | 0.59      | 0.12        | 0.91    |
| Idealized influence         | 388            | 3.99    | 0.77      | 404               | 4.03    | 0.74      | -0.73       | 0.47    |
| Inspirational motivation    | 388            | 4.05    | 0.72      | 404               | 4.09    | 0.68      | -0.77       | 0.44    |
| Intellectual stimulation    | 388            | 3.62    | 0.88      | 404               | 3.72    | 0.80      | -1.74       | 0.08    |
| Individual consideration    | 388            | 3.38    | 0.96      | 404               | 3.43    | 0.93      | -0.68       | 0.49    |
| Contingent reward           | 388            | 3.12    | 0.93      | 404               | 3.05    | 0.94      | 1.02        | 0.31    |
| Leadership_overall          | 388            | 4.12    | 0.57      | 404               | 4.11    | 0.56      | 0.08        | 0.93    |
| Leadership_overall_D1       | 388            | 4.11    | 0.71      | 404               | 4.14    | 0.69      | -0.58       | 0.56    |
| Leadership_overall_D3       | 388            | 4.16    | 0.69      | 404               | 4.12    | 0.68      | 0.87        | 0.39    |
| Leadership_overall_D5       | 388            | 4.02    | 0.63      | 404               | 4.04    | 0.62      | -0.41       | 0.68    |
| Trust_in_school_leader      | 388            | 4.02    | 0.70      | 404               | 4.00    | 0.73      | 0.49        | 0.62    |
| Trust_in_school_leader_D5   | 388            | 4.16    | 0.77      | 404               | 4.18    | 0.75      | -0.46       | 0.65    |
| Distributed_leadership      | 388            | 4.28    | 0.44      | 404               | 4.23    | 0.46      | 1.62        | 0.11    |
| Distributed_leadership_D4   | 388            | 4.32    | 0.47      | 404               | 4.25    | 0.49      | 1.88        | 0.06    |
| D1_overall                  | 388            | 4.10    | 0.54      | 404               | 4.08    | 0.55      | 0.41        | 0.68    |
| D3_overall                  | 388            | 4.16    | 0.69      | 404               | 4.12    | 0.68      | 0.87        | 0.39    |
| D4_overall                  | 388            | 4.31    | 0.46      | 404               | 4.25    | 0.48      | 1.74        | 0.08    |
| D5_overall                  | 388            | 4.07    | 0.60      | 404               | 4.08    | 0.59      | -0.50       | 0.62    |

(\*: significance level at between 1 to 5 percent level; \*\* significant at less than 1 percent level)

D=Leadership dimensions; D1=Establishing goals and expectations; D3=Planning, coordinating and evaluating the teaching and the curriculum; D4: Promoting and participating in teacher learning and development; D5= Ensuring an orderly and supportive environment

## 9. Conclusion

This paper presented a baseline study on the evaluation of an intervention with a CPD programme for school leaders in Rwanda. In the intervention we assess whether a peer-led group, or a group of (D)HT with only limited access to a tutor of UR-CE, performs as well as a trainer-led group, or group with elaborated access to a tutor from UR-CE, in terms of cognitive and non-cognitive outcomes. The objective of this baseline study is to assess the baseline status of primary outcome measures for the intervention and comparison group and test for any differences between the two groups. The primary outcome measures are perceived barriers or enablers in participation, job satisfaction, general self-efficacy, work tasks motivation, motivation to learn and leadership styles and standards. The leadership styles and standards are overall leadership, trust in the school leader, distributed leadership, instructional leadership and transformational leadership. Furthermore, the baseline results on these outcome measures are described.

In order to conduct the baseline study, questionnaires have been administered among a sample of 443 (D)HT and 792 teachers from a total of 381 schools. Of these respondents, 226 (D)HTs are currently receiving the trainer-led CPD programme, and 217 (D)HTs are receiving the peer-led programme. As such, the baseline study refers to the period before the execution of this programme.

This baseline study shows that overall treatment and comparison group are very similar on pre-treatment characteristics and on the pre-test outcome measures, for both (D)HTs and teachers of treated schools. We see some small differences in the barriers and in motivation, which could be caused by the fact that (D)HTs knew whether they were in the peer-led or trainer-led group may have influenced this.

### 9.1. Recommendations for post-test questionnaire

The (D)HTs were provided questionnaires and their responses were recorded on the following aspects: (1) Barriers to e-learning (2) Job Satisfaction (3) Work tasks motivation (4) General self-efficacy (5) Motivation to learn (6) Instructional leadership (7) Transformational leadership (8) Leadership overall (9) Trust in school leaders (10) Distributed leadership. The teachers' questionnaire, on the other hand focused on the topics ranging from (6) to (10). Some of these questionnaires also contained subscales. The scale reliability of each of these aspects was tested using principal component analysis (PCA); if the set of questions (scale) reported a reliability coefficient greater than 0.6, it is considered to perform well and can be included further in the post-test questionnaire and analysis. However, not all sets of questions under certain scales (or subscales) are observed to meet this criterium and hence would need to be excluded from the post-test analysis. If, however, the overall scale reports a satisfying score in terms of reliability (obtained from the PCA-analysis), we would advise to still include all statements belonging to this scale in the post-test questionnaire, even though one of the subscales did not perform well in the reliability analysis. For instance, in the context of the e-learning barriers, the questions pertaining to the subscales situational barrier and institutional barrier do not perform so well in terms of reliability but the overall scale of e-learning barriers register a satisfying score in terms of reliability coefficient. Hence, these statements should all be included for the post-test questionnaire and analysis. However, the statements associated with the scale 'Trust in school leaders' do not satisfy the desirable threshold in terms of the reliability coefficient and hence are advised to be excluded from the post-test analysis.

Furthermore, considering the leadership dimensions, which are the combination of questions 9, 10 and 11, the reliability coefficient of D1 focusing on Establishing goals and expectations, D2 focusing on Strategic resourcing, D3 focusing on Planning, coordinating and evaluating teaching and the curriculum and D5 which deals with Ensuring an orderly and supportive environment fall below 0.6. Hence, it is

recommended to not use these leadership dimensions in further analysis. However, we do not need to drop these questions, since the separate scales based on questions 9, 10 and 11 do perform well (except for question 10). For teachers' questionnaire, however, the overall performances of the scales are satisfying in terms of reliability coefficient and hence can be included for the post-test questionnaire.

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## Appendix with the reliability of the pilot test results

| Concept          | Subconcept             | Q-number<br>(D)HT | Q-number<br>Teacher | Statements              | Alpha<br>(D)HT | Alpha<br>Teachers | Comments<br>(D)HT                     | Comments<br>Teacher |
|------------------|------------------------|-------------------|---------------------|-------------------------|----------------|-------------------|---------------------------------------|---------------------|
| Learning barrier |                        | 2                 |                     |                         | 0.71           |                   |                                       |                     |
|                  | situational barriers   | 2                 |                     | 3, 7, 8, 10, 11         | 0.55           |                   | 0.64 without 3, 0.77 without 3 and 10 |                     |
|                  | institutional barriers | 2                 |                     | 1, 5, 6, 15             | 0.48           |                   | 0.57 without 1, 0.72 without 1 and 15 |                     |
|                  | dispositiona l barrier | 2                 |                     | 2, 4, 9, 12, 13, 14, 16 | 0.60           |                   |                                       |                     |
| Job satisfaction |                        | 3                 |                     | 1 to 14                 | 0.80           |                   |                                       |                     |
| Motivation       |                        | 4                 |                     | 1 to 15                 | 0.76           |                   |                                       |                     |
|                  | Intrinsic motivation   | 4                 |                     | 1, 6, 10                | 0.74           |                   |                                       |                     |
|                  | identified regulation  | 4                 |                     | 2, 12, 14               | 0.56           |                   | 0.68 without 2                        |                     |
|                  | introjected regulation | 4                 |                     | 4,7                     | 0.68           |                   |                                       |                     |
|                  | external regulation    | 4                 |                     | 5,8,15                  | 0.30           |                   | cannot be improved                    |                     |
|                  | amotivation            | 4                 |                     | 3,11,13                 | 0.57           |                   |                                       |                     |
| Self efficacy    |                        | 5                 |                     | 1 to 8                  | 0.82           |                   |                                       |                     |

| Concept                     | Subconcept                         | Q-number<br>(D)HT | Q-number<br>Teacher | Statements     | Alpha<br>(D)HT | Alpha<br>Teachers | Comments<br>(D)HT | Comments<br>Teacher |
|-----------------------------|------------------------------------|-------------------|---------------------|----------------|----------------|-------------------|-------------------|---------------------|
| Learning motivation         |                                    | 6                 |                     | 1 to 20        | 0.83           |                   |                   |                     |
|                             | attitude towards learning (ATT)    | 6                 |                     | 16, 17, 18, 19 | 0.49           |                   | 0.5200 without 18 |                     |
|                             | behavioral intention to learn (BI) | 6                 |                     | 10, 15         | 0.49           |                   |                   |                     |
|                             | perceived ease of use of cpd (EOU) | 6                 |                     | 2, 6, 12       | 0.42           |                   | 0.48 without 12   |                     |
|                             | perceived usefulness of CPD (PU)   | 6                 |                     | 1, 5, 9        | 0.83           |                   |                   |                     |
|                             | perceived behavioral control (PBC) | 6                 |                     | 4, 8, 13       | 0.41           |                   | 0.71 without 13   |                     |
|                             | subjective norm                    | 6                 |                     | 3, 7, 11       | 0.40           |                   | 0.50 without 3    |                     |
| Instructional leadership    |                                    | 7                 | 2                   | 1 to 5         | 0.80           | 0.81              |                   |                     |
| Transformational leadership |                                    | 8                 | 3                   | 1 to 21        | 0.83           | 0.93              |                   |                     |
|                             | Idealized influence                | 8                 | 3                   | 1, 8, 15       | 0.62           | 0.81              | 0.71 without 1    |                     |
|                             | inspirational motivation           | 8                 | 3                   | 2, 9, 16       | 0.44           | 0.65              | 0.72 without 16   | 0.76 without 2      |
|                             | intellectual stimulation           | 8                 | 3                   | 3, 10, 17      | 0.37           | 0.69              | 0.53 without 10   | 0.77 without 3      |
|                             | individual consideration           | 8                 | 3                   | 4, 11, 18      | 0.66           | 0.84              | 0.70 without 18   |                     |
|                             | contingent reward                  | 8                 | 3                   | 5, 12, 19      | 0.31           | 0.62              | 0.53 without 12   | 0.85 without 5      |
|                             | management by exception            | 8                 | 3                   | 6, 13, 20      | 0.33           | 0.45              | 0.49 without 20   |                     |
|                             | laissez faire leadership           | 8                 | 3                   | 7, 14, 21      | 0.58           | 0.59              | 0.64 without 21   | 0.65 without 7      |

| Concept                | Subconcept   | Q-number<br>(D)HT | Q-number<br>Teacher | Statements | Alpha<br>(D)HT | Alpha<br>Teachers      | Comments<br>(D)HT | Comments<br>Teacher |
|------------------------|--|-------------------|---------------------|------------|----------------|------------------------|-------------------|---------------------|
| Leadership overall     |  | 9                 | 4                   | 1 to 10    | 0.77           | 0.88                   |                   |                     |
|                        | Establishing goals and expectations (D1)                               | 9                 | 4                   | 4, 9       | 0.39           | 0.68                   |                   |                     |
|                        | Strategic Resourcing (D2)  | 9                 | 4                   | 10         | n/a            | n/a                    |                   |                     |
|                        | Planning, coordinating and evaluating teaching and the curriculum (D3) | 9                 | 4                   | 2, 3, 8    | 0.28           | 0.41<br>0.83 without 8 |                   |                     |
|                        | Promoting and participating in teacher learning and development (D4)   | 9                 | 4                   | 5          | n/a            | n/a                    |                   |                     |
|                        | Ensuring an orderly and supportive environment (D5)                    | 9                 | 4                   | 1, 6, 7    | 0.57           | 0.63                   |                   |                     |
| Trust in school leader |  | 10                | 5                   | 1 to 4     | 0.32           | 0.63<br>0.37 without 1 | 0.74<br>without 1 |                     |
|                        | Establishing goals and expectations (D1)                               | 10                | 5                   | 2          | n/a            | n/a                    |                   |                     |
|                        | Strategic Resourcing (D2)  | 10                | 5                   | 1          | n/a            | n/a                    |                   |                     |
|                        | Ensuring an orderly and supportive environment (D5)                    | 10                | 5                   | 3, 4       | 0.01           | 0.759                  |                   |                     |
| Distributed Leadership |  | 11                | 6                   | 1 to 10    | 0.85           | 0.74                   |                   |                     |
|                        | Establishing goals and expectations (D1)                               | 11                | 6                   | 1, 2, 3    | 0.69           | 0.25                   | 0.37<br>without 1 |                     |
|                        | Promoting and participating in teacher learning and development (D4)   | 11                | 6                   | 4 to 10    | 0.83           | 0.73                   |                   |                     |

| Concept  | Subconcept | Q-number (D)HT | Q-number Teacher | Statements                                       | Alpha (D)HT | Alpha Teachers | Comments (D)HT    | Comments Teacher                        |
|--|------------|----------------|------------------|--|-------------|----------------|-------------------|---|
| Establishing goals and expectations (D1)                               |            | 9, 10, 11      | 3, 4, 5          | 9_4, 9_9,<br>10_2, 11_1<br>11_2, 11_3            | 0.53        | 0.66           | 0.58 without 10_2 |   |
| Strategic Resourcing (D2)  |            | 9, 10, 11      |                  | 9_10 10_1  | 0.23        | n/a            |                   | only 1 question in teacher quest (10_1) |
| Planning, coordinating and evaluating teaching and the curriculum (D3) |            | 9, 10, 11      |                  | 9_2 9_3 9_8                                      | 0.28        | 0.83           | 0.40 without 9_8  |   |
| Promoting and participating in teacher learning and development (D4)   |            | 9, 10, 11      |                  | 9_5 11_4<br>11_5 11_6<br>11_7 11_8<br>11_9 11_10 | 0.79        | 0.72           | 0.83 without 9_5  |   |
| Ensuring an orderly and supportive environment (D5)                    |            | 9, 10, 11      |                  | 9_1 9_6 9_7<br>10_3 10_4                         | 0.41        | 0.77           | 0.47 without 10_4 |   |



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