

Chapter 19

The Need for Curriculum Leadership to Sustain Systematic and Collaborative Curriculum Design Practices



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Introduction

TVET Curriculum Development in Developing Countries

In response to a growing demand for qualified middle-level professionals by businesses and industry, developing countries are paying an increasing attention to Technical Vocational Education and Training (TVET). This type of education is believed to reduce poverty and support economic growth by feeding the job market with qualified professionals and entrepreneurs who can make a living independently (Bureau of the Conference of Ministers of Education of the African Union, 2007; Killian, Tendayi, & Augustine, 2009; Ziderman, 1997). This continued interest in TVET is shown in the establishment of ministries for this particular type of education (e.g., in Yemen), the upgrading of polytechnics to a tertiary status (e.g., in Ghana), the expansion of TVET institutions (e.g., in Ethiopia, Yemen, and Tunisia), and the development of national policies and strategies for TVET, usually in collaboration with the World Bank or some donor countries (Bakah, Voogt, & Pieters, 2012a; Bureau of the Conference of Ministers of Education of the African Union, 2007; European Training Foundation & World Bank, 2004; Shumaker, 2013).

However, a growing body of research indicates a gap between the educational programs offered by TVET institutions in developing countries and the needs of the labor market, which therefore hampers the realisation of the stated intentions of this form of education (e.g., Agrawal, 2012; Baqadir, Patrick, & Burns, 2011). The TVET curriculum is usually of low quality, supply-driven, and incapable of keeping pace with the technological advances and socioeconomic changes to which the community and industry must respond (European Training Foundation & World

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347

Bank, 2004; Lai & Lo, 2008; Ziderman, 1997). Employers expect TVET educational programs not only to equip students with adequate entry-level vocational knowledge but also to provide them with a broad array of generic and entrepreneurial skills that render their graduates adaptable to work environments, able to learn new things in the workplace, aware of work ethics, and capable of working independently (Baqadir et al., 2011; Boateng, 2012; Lai & Lo, 2008). This requires TVET curricula to be broad in their goals and content (Finch & Crunkilton, 1999).

This vocational gap stems from various challenges that TVET institutions in developing countries encounter when striving to maintain the consistency of their programs with the stakeholders' needs. One setback lies in the reported inadequate collaboration between industry and TVET institutions on curriculum development matters, causing an expectation gap between these two parties (Akomaning, Voogt, & Pieters, 2011; Bakah, Voogt, & Pieters, 2012b). Other challenges include the lack of resources needed to have and maintain educational infrastructure (e.g., labs and workshops for practical training) and the absence of information and national statistics about the graduates' employment, which is necessary input for valid TVET curriculum updating (Lumby, 2000).

However, a major challenge receiving an increasing attention in both literature and practice concerns the low capacity of the academic management of TVET institutions for leading curriculum renewal projects that align TVET programs with the needs of concerned stakeholders (Gervedink Nijhuis, Voogt, & Pieters, 2012). Academic managers such as Heads of Department (HoDs) lack adequate competency to conduct systematic program renewals, due to scarce in-service professional development opportunities and inadequate attachment to industry, resulting in academic departments without goals and curricula that have not been reviewed for many years (Bakah et al., 2012a; Gervedink Nijhuis et al., 2012). This is an expected consequence, given that academic managers, especially in developing countries, are usually promoted to these leading positions based on their teaching seniority without going through adequate professional preparation, and assuming that good teachers can be good leaders (Mattar, 2012; Yelder & Codling, 2004).

Research Problem

As established above, TVET institutions in developing countries are expected to develop and maintain high quality and relevant educational programs, thereby contributing to the national development plans for poverty alleviation and economic growth. Unfortunately, a major challenge hampering the realisation of this goal lies in the low professional capacity of these institutions. Overestimating the capacity of the academic managers and teachers in TVET institutions to lead systematic curriculum development, given the lack of professional preparation for such an essential function, holds little promise for achieving the mandate of these institutions. The purpose of this educational design research was dual. From a design (problem-solving) perspective, it aimed first to professionally support HoDs to practice

effective curriculum leadership when leading departmental curriculum work and second to promote teacher collaborative curriculum design, as both strategies hold great potential for realising sustainable and enhanced curriculum design practices. And from a scientific perspective, the study sought to describe the design and the impact of these two strategies along with identifying contextual constraints that might diminish their potential. This study moves research in this particular field and context beyond identifying gaps in the TVET curriculum and towards describing potential strategies for improving its quality and relevance.

Study Context

Sana'a Community College (SCC), the context of this study, is a leading TVET institution in Yemen. Community colleges in Yemen started as a new post-secondary educational structure having the purpose of bridging the vocational gap between the outcomes of regular universities and the fast-changing needs of the community and labour market (Alzubairy, 2009). Starting from one community college in the capital city in the academic year 2000–2001, there are now ten public community colleges in the country. These colleges serve a common mission of developing a middle-level skilled workforce to address the need for a stronger link between post-secondary education and employment in the corporate and industrial sectors (Shumaker, 2013).

Like most other TVET institutions, community colleges do not yet have accreditation standards to use as a benchmark for evaluating and updating their educational programs, nor do they have (active) quality assurance or curriculum development units in their premises. Therefore, academic departments in these institutions handle curriculum development activities based on their personal judgment and within their expertise.

Early batches of graduates from these colleges were generally well-received by industry and businesses; however, employers demanded new courses to be added, more attention to employability skills (e.g., English and computer skills), and more focus on the provision of hands-on learning experiences to students (Alzubairy, 2009).

Conceptual Framework

Curriculum and Curriculum Design

The concept of 'curriculum' in this chapter is used broadly to refer to the academic plans or blueprints that an educational institution has for guiding student learning (Lattuca & Stark, 2009; Taba, 1962; Wiles, 2009). These plans need to be

comprehensive in order to attend to various aspects of the teaching-learning process, thereby minimising potential problems during the implementation of these plans. The 'curriculum' is usually manifested in three major representations (Goodlad, Klein, & Tye, 1979): the planned/formal curriculum (the educational intentions as described in curricular documents such as program/course descriptions), the enacted curriculum (i.e., curriculum in action), and the attained curriculum (the resulting student learning).

Curriculum design or curriculum development (used interchangeably in this chapter) can be defined as a lengthy and iterative process of planning, designing, implementing, and evaluating the student learning experiences in order to realise desired changes (Print, 1993; Van den Akker, 2003; Wiles, 2009). From a technical-professional perspective (Goodlad, 1994), that is, the technical aspects of the development process, the curriculum design process has been depicted in many various approaches and models. These are synthesised into four major paradigms (Visscher-Voerman & Gustafson, 2004): the instrumental paradigm, the communicative paradigm, the pragmatic paradigm, and the artistic paradigm. The first two of these paradigms seem to be relevant to the design of the TVET curriculum.

The first of these two paradigms is based upon a systematic (instrumental) approach, which dates back to Tyler's (1949) rational-linear approach. Most available systematic design models are variants of Tyler's approach. In the systematic approach, the development of the curriculum's learning outcomes is the focal point that determines the other components of the curriculum, such as the content, the learning strategies, and the assessment methods (Visscher-Voerman, Gustafson, & Plomp, 1999). This approach often revolves around an iterative cycle of five phases: analysis, design, development, implementation, and evaluation (Piskurich, 2006). The second paradigm represents a relational (communicative) approach that *explicitly* recognises the social context of the design. Design models within this paradigm are mostly influenced by Walker's (1990) deliberative approach. A key activity in the communicative approach is the extensive collaboration and deliberation between the curriculum developers and the stakeholders (e.g., employers, teachers, and institution management) throughout the design process to reach consensus about what the curriculum should be like (e.g., program structure, content, and pedagogy) and how it should be developed and implemented (Kessels & Plomp, 1999).

Kessels (1999) advocated, in a corporate education context, the simultaneous use of these two curriculum design approaches. He explained that the successful application of the systematic approach results in a well-organised curriculum with robust 'internal consistency', defined as coherence between the curriculum components, whereas the adoption of the relational (communicative) approach enhances the curriculum 'external consistency', defined as harmony in the perceptions of the stakeholders about what the curriculum's outcomes are and how they can be realised. Blending curriculum design approaches to address the particular context for which the curriculum is designed is becoming a popular trend (Van den Akker, 2003). Kessels' blend appears to hold great promise for the (re)development of the TVET curriculum.

Curriculum Leadership

With educational decentralisation gaining momentum, including in TVET, and the resulting shift in responsibilities and roles played by all stakeholders, there is increasing pressure on the academic managers of educational institutions to achieve better educational outcomes (Dinham, 2005; The European Centre for the Development of Vocational Training, 2011; Gajardo & Carmenado, 2012). Academic managers are increasingly expected to move beyond the traditional administrative role, attending more to their role as curriculum leaders: planning educational programs, maximising the learning experiences of students, and attending to external and internal curricular influences (Darling-Hammond, Meyerson, LaPointe, & Orr, 2009; Dinham, 2005; Fullan, 2007; Lattuca & Stark, 2009; Neumerski, 2012). Curriculum leadership can be defined as “a facilitating process in which the leader works with others to find common purpose, build collaborative teams, structure a way of working, and coordinate many complex activities” (Wiles, 2009, p. 21). Wiles (2009) further argued that “curriculum development is the essential function of school leadership. Whether this role is carried out by a principal, . . . a department head, . . . the curriculum defines all other roles in a school” (p. 2).

Achieving outstanding educational outcomes depends a great deal on the leadership of academic managers, with curriculum development at the core (Dinham, 2005). Conceptualising the daily leadership activities of academic managers (school principals) as climate-related activities (e.g., creating a positive learning environment, promoting teacher learning, and reducing the non-instructional interruptions) and technological behavior (e.g., setting goals, coordinating curriculum planning and implementation, and evaluating student achievement), Mattar (2012) found that the principals of high-achieving schools performed better than those of low-achieving ones in both sets of functions. Another study found that academic departments judged by senior management to be involved in effective curriculum design practices had HoDs who performed curriculum leadership tasks such as sensing curriculum problems and opportunities, creating structures for teacher collaboration, and introducing proposals for curricular change (Stark, Griggs, & Rowland-Poplowski, 2002).

Realising the critical role academic managers can play in maintaining and advancing curricula, there is clear emphasis in the literature regarding providing continuing professional support for academic managers to assume effective curriculum leadership (Brown, Rutherford, & Boyle, 2000; Neumerski, 2012; Nguyen, 2012; Vieira da Motta & Bolan, 2008). Academic managers attending professional development programs are reported to be more capable, more confident, and more involved in effective practices than those who do not participate in such professional opportunities (Darling-Hammond et al., 2009). The lack of training opportunities and the inadequate support and encouragement, especially for middle managers (e.g., HoDs), can prevent these managers from performing effective curriculum leadership tasks in practice (Nguyen, 2012; Stark et al., 2002; Wolverton, Ackerman, & Holt, 2005).

Collaborative Curriculum Design

Having competent curriculum leaders without the involvement and collaboration of the department teachers on curriculum design matters would not probably yield effective curriculum design practices and outcomes. Teacher collaborative curriculum design (TCCD) is a widely recognised curriculum design strategy because of its reported significant contributions to the professional development of teachers in areas such as subject matter and systematic curriculum design skills (Bakah, 2011; Huizinga, Handelzalts, Nieveen, & Voogt, 2015; Voogt et al., 2011). This strategy can also improve the harmony between the formal and the enacted curriculum, enhance teachers' ownership of the curriculum, and promote teachers' curricular collaboration (Bakah, Voogt, & Pieters, 2012c; George & Lubben, 2002; Handelzalts, 2009; Nihuka & Voogt, 2012).

This substantial impact of TCCD on both curriculum development and teacher professional development can be attributed to three sound theoretical principles underpinning TCCD: "... the situatedness of activity, agency, and the cyclical nature of learning and change" (Voogt et al., 2015, p. 261). 'Situatedness' refers to the fact that the curricular problems that the teachers work on and, hence, learn from are authentic and site-based. 'Agency' concerns the teachers' ownership of and their individual and collective responsibility for the curricular change, as this originates from addressing their own curricular needs. The 'cyclic nature of learning and change' refers to the interaction of the learning process with the cyclical nature of design: identifying a problem, analysing it, developing a solution, and experimenting with the new solution.

In a TVET context, however, teacher collaboration needs to be extended to involve employers and industry representatives in order to establish the curriculum's external consistency. External consistency defined as harmony in the stakeholders' perceptions of what the curriculum's outcomes are and how they can be realised (Finch & Crunkilton, 1999; Kessels, 1999). Although the external consistency of the TVET curriculum in developing countries is often threatened by a lack of *formal* collaboration between TVET institutions and industry, studies conducted in such a context indicate that TCCD has great potential for improving this form of curriculum consistency. Akomaning (2012) investigated how TCCD that involved industry representatives improved the internship curriculum within Ghanaian polytechnics. He found that student internship practices had improved, and that all concerned stakeholders (teachers, polytechnics management, students, and industry) were satisfied with the newly structured internship curriculum, as the TCCD strategy provided a collaborative platform for those stakeholders to develop a shared vision and consensus about the new internship curriculum. Bakah (2011) also reported how TCCD that involved industrial site visits by teachers to see new trends and technology not only improved the learning and teaching practices of the participating teachers, but also had a positive impact on the relevance of the courses they collaboratively redesigned. These two studies, along with some others (e.g., Nihuka,

2011), suggest that TCCD is an efficient strategy that can simultaneously improve teacher learning and the curriculum aspect being (re-)designed.

Research Question

College academic departments are central units where the curriculum (i.e., plans for student learning) is commonly engineered and updated (Hecht, 2004; Nguyen, 2012). The professional capacity of academic departments (i.e., HoDs and teachers) in TVET institutions therefore needs to be improved so that these institutions can maintain and enhance the internal and external consistency of their curricula. The overall research question of this study was: *How can professional development support help TVET college middle managers and teachers improve their curriculum design practices with regard to enhanced curriculum consistency?*

Research Design

Case Study Approach

A case study approach was used as the specific methodology for this study. This approach is preferred when a study seeks to explain 'how' and 'why' a contemporary phenomenon functions in a certain way in a real-life setting with little control over the events (Yin, 2003). In line with Yin's reasoning, this study did not aim for 'statistical generalisation'; it rather endeavored to contribute to the theoretical understanding (analytical generalisation) of the phenomenon under study (professional development support for TVET HoDs and teachers) as undertaken by a specific group of people in a specific context. Another reason for using a case study approach is the flexibility it affords in using multiple methods of data collection and, hence, multiple ways of building up evidence (Schell, 1992).

Within the case study approach, this study used a mixed-method design for the four studies, based on the purpose and scope of each one. Each study employed several data collection methods to achieve data triangulation in order to improve the validity of conclusions (Yin, 2003). Validity and reliability of instruments were considered through, for example, the calculations of reliability coefficients (Cronbach's alpha and Cohen's kappa) of the study questionnaires and interviews. Qualitative data were collected through semi-structured interviews, observations, curricular documents, and field notes. Analysis of qualitative data was conducted systematically through employing both inductive and deductive procedures (Miles & Huberman, 1994; Thomas, 2006) with the help of qualitative data analysis software (Atlas.ti7). Quantitative data came mainly from the questionnaires administered, which used Likert and rating scales. Descriptive and inferential statistics were obtained through the use of SPSS statistical software.

Main Findings

The findings from a previous explanatory study (Albashiry, Voogt, & Pieters, 2015a) showed that there was a major problem with the college's formal curriculum (curriculum design as a blueprint). Learning outcomes, program/course descriptions, and internal curriculum policies regulating curriculum design activities were either missing or ill-defined. Curriculum design as a process was found to be mostly ad hoc, intuitive, individual, and centered around modifying individual courses, losing the global view of the whole academic program delivered by each department. Involvement of external stakeholders in programs' renewals following their inception was absent. The need for professional development on managing curriculum design activities was one issue clearly communicated by teachers, HoDs, and Heads of Divisions.

First Professional Development Arrangement (PDA-1)

The purpose of this sub-study (Albashiry, Voogt, & Pieters, 2015b) was to describe the design, relevance, and effects of the first professional development arrangement (PDA-1) for the college middle managers (HoDs and Heads of Division) as an initial intervention aimed at improving the curriculum design practices identified in the exploratory study. This sub-study addressed the overall question: "*What impact can a professional development arrangement have on improving the curriculum leadership of college middle managers?*". PDA-1 aimed first to improve the middle managers' learning about systematic and relational curriculum design and second to support them in developing curriculum design policies such that they could practice effective curriculum leadership while improving the current ad hoc curriculum design practices. The effects of PDA-1 were measured at the first three levels of Kirkpatrick's model (Kirkpatrick & Kirkpatrick, 2006): the participants' perceptions of PDA-1's relevance, their learning, and their post-intervention curriculum design practices.

The findings showed that the middle managers highly appreciated the design and the content of PDA-1 and found it relative and supportive to their work as curriculum leaders. The middle managers also gained substantial learning about systematic and collaborative curriculum design, which included a change in their perceptions about the concepts of 'curriculum' and 'curriculum design'. The middle managers' beliefs shifted towards a broader perspective of 'curriculum design' compared with their previous notions that had mostly confined such a process to the updating of the syllabi of individual courses by individual teachers. Improved confidence in leading systematic and collaborative curriculum design activities was also reported. However, at the third level (applying the new learning and the developed curriculum policies), the middle managers' post-PDA-1 curriculum design efforts were minimal and characterised by individual initiatives, due to several challenges. These

included the lack of top management support, unfavorable work conditions, a high rate of middle manager attrition, and the inadequate curriculum design expertise of department teachers. It was also clear that HoDs needed more professional development support on leading curriculum design projects.

Second Professional Development Arrangement (PDA-2)

This sub-study (Albashiry, Voogt, & Pieters, 2016) reported on the second round of the professional development arrangement (PDA-2). PDA-2 comprised further training for HoDs (focusing this time on curriculum leadership tasks) and initial training for teachers (focusing on basics of curriculum design), followed by a curriculum development project led by HoDs. The curriculum development project aimed to give the HoDs and the teachers the opportunity to practice and demonstrate the desired curriculum design and curriculum leadership practices and at the same time to improve the internal and external consistency of their formal curricula.

Conceptualising curriculum leadership as four major tasks, this sub-study focused on how the participating HoDs perceived and enacted these tasks after receiving relevant training and assistance (e.g., coaching, handouts, templates, and exemplary materials). The study also captured HoDs' perceptions about the support they received and the challenges they encountered while leading the curriculum development project. The overall question for this study was: "*How do middle managers perceive and enact curriculum leadership tasks within curriculum development projects?*"

The findings showed that the HoDs valued the relevance and the usefulness of the multiple forms of support received and the curriculum leadership experience, which made them realise the significance of their role as curriculum leaders compared with the traditional administrative role that had been their major focus. The findings also indicated that the ways the HoDs enacted the curriculum leadership tasks and the challenges they encountered varied based on several factors including the HoD's commitment, management and leadership skills, knowledge about curriculum design, and the department context.

Teacher Collaborative Curriculum Design

During PDA-2, four academic departments worked on re-designing their programs of study. Under the leadership of the HoD, a team of teachers from each department worked collaboratively to re-design their academic programs systematically and relationally in order to improve the internal and external consistency of the curriculum. A sub-study (Albashiry, Voogt, & Pieters, 2015c) explored how the four teacher collaborative curriculum design (TCCD) teams went about this undertaking, capturing the participants' perceptions of the TCCD process and its outcomes. All the design teams

except for one team (due to departmental problems) managed to redesign their academic programs systematically and relationally, with varying degrees of success.

Applying a systematic approach, these teams followed a systematic design cycle (analysis, design, development, and evaluation) to develop the formal curriculum of their departments. The teams linked the department mission with the department goals and the program's learning outcomes with the courses' learning outcomes (internal consistency). Given the novelty of this approach, working systematically was a time- and effort-demanding process for all teams. Among the challenges encountered in applying this approach were the phrasing of the program's and courses' learning outcomes, developing data collection instruments, analysing the data collected, and conducting formative evaluation. This required providing coaching and just-in-time support during the design process.

However, applying a relational approach was more challenging in terms of feasibility. Only one team could involve concerned stakeholders as co-designers while the other teams just managed to involve their curriculum stakeholders just as informants. Involving external stakeholders (e.g., subject matter experts and industry representatives) was also found to be harder than involving the internal ones (e.g., department teachers and students). This difficulty of establishing external consistency seemed to be a natural consequence of the lack of formal coordination between TVET institutions and industry and of the absence of a professional network in the college for curriculum review purposes.

Despite these challenges in applying systematic and relational procedures, the teachers felt positive about the TCCD experience and its outcomes. The teams perceived their formal curricula now to have better clarity and consistency because of their application of systematic and relational design procedures. The teachers also reported that this undertaking helped them learn new skills and develop a sense of clarity together with a holistic view of the department curriculum, and fostered their collaboration and commitment to the department curriculum.

Conclusion

The research reported in this chapter was based on the premise that in-service professional development of HoDs and teachers that is geared towards HoDs' curriculum leadership and teacher collaborative curriculum design (TCCD) holds great promise for the professionalisation of curriculum design practices in TVET academic departments, which can eventually lead to sustainable curriculum consistency. This educational design study aimed to improve the status quo regarding the educational problem at hand, and at the same time to produce theoretical understanding of how the intervention played out in a real-world setting.

The findings of the studies showed that professionally-supported middle managers and teachers demonstrated improved curriculum design and leadership practices that contributed to the improvement of the curriculum internal and external consistency. The programs redesigned in this study had better clarity, greater detail, and

improved connectedness between various components such as department goals, program's learning outcomes, and courses' learning outcomes (internal consistency). In addition, the resulting curricular artefacts (e.g., new/modified courses, updated content, and program's learning outcomes) were perceived by teachers and HoDs to be relevant to the needs and expectations of industry and prospective employers. Similar positive outcomes concerning curriculum consistency have been reported in similar TVET contexts as a result of professionally- supported teachers' curriculum design efforts (Akomaning et al., 2011; Bakah et al., 2012b).

The reported improved curriculum design practices and curriculum consistency in this study can be attributed to several factors. First, the multiple forms of professional development support that the teachers and HoDs received (e.g., training, coaching, exemplary materials, handouts, and templates) played a significant role in these stakeholders' learning about and application of systematic and relational curriculum design practices (cf. Darling-Hammond et al., 2009). Second, the professional development support in its two rounds took into account contextual constraints by incorporating a decrease in workload for participants, providing incentives, and flexibility in scheduling training sessions and other activities (Bakah et al., 2012b; Guskey, 2000, 2003). This created an overall positive work environment for the HoDs and teachers and hence effected a positive attitude towards the curriculum design undertaking. It also helped alleviate the tension between the participants' commitment to their routine academic work and the curriculum project. Further, the application of a systematic and relational approach was a major contributor to the reported improved internal and external consistency of curricula (Kessels, 1999; Kessels & Plomp, 1999). Moreover, the relatively extended time span of the intervention (Guskey, 2000, 2003) and the piecemeal evolution of the project activities probably helped the teachers and HoDs cope with the novelty and complexity of the curriculum design approach used during the program re-design task.

The findings also indicate that although professionally supported HoDs and teachers at TVET institutions further realise the importance of involving external stakeholders to enhance curriculum external consistency, accomplishing this task is not always feasible in practice. The lack of formal professional networking and liaisons with industry in many developing countries represents a great challenge for TCCD teams to reach and involve prospective employers and industry representatives in the (re)-design of their educational programs (Akomaning et al., 2011).

Further, it may be concluded that in-service professional development support for HoDs with a focus on curriculum leadership has a positive impact, to varying degrees, on HoDs' learning and ability to lead effective curriculum design practices. Professional development support with such a focus also renders HoDs more appreciative of and alert to their role as curriculum leaders and more aware of how such a role extends beyond the administrative domain (Aziz et al., 2005). The findings suggest that HoDs still need further *tailored* professional support in three professional competencies (curriculum design, management, and leadership) so as to match the individual professional development needs of HoDs. The findings indicate, however, that besides the provision of adequate professional support, HoDs critically need positive work conditions and organisational support (e.g., senior managers' follow-up,

clarity of curriculum development expectations for teachers, middle management, and senior management, and provision of incentives for curriculum work) to exercise effective curriculum leadership in practice (cf. Kirkpatrick & Kirkpatrick, 2006).

Reflections and Implications

Challenges Associated with the Position of HoD

The position of HoD in TVET institutions in developing countries does not seem to be either financially or professionally rewarding enough for department teachers to accept or opt for (Gervedink Nijhuis et al., 2012). In such a context, HoDs are often consumed by many administrative tasks such as coordinating student exams, reporting grades, following up on teachers' performance, solving students' problems, and improvising solutions for urgent issues. Little energy and peace of mind are left for HoDs to turn to curriculum development matters (cf. Marsh & Willis, 1999). Furthermore, in-service training for HoDs, especially on effective curriculum design approaches, is seriously inadequate.

Such work conditions for HoDs result in a high attrition rate in this academic position and make this critical leadership position tend to be occupied by less qualified teachers (Akomaning, 2012; Gervedink Nijhuis et al., 2012). This is why the intervention in this study took into consideration the establishment of a supportive climate for the participating HoDs to work on a major curriculum renewal. The training provided and the incentive package offered (e.g., a workload decrease and monetary incentives) were highly appreciated by the participating HoDs. This clearly implies that if HoDs are to lead tangible and sustainable curriculum development efforts towards better curriculum consistency, both professional and organisational support need to be provided by senior management.

Competencies for Curriculum Leaders

In congruence with the literature on academic leadership (e.g., Glatthorn, Boschee, Whitehead, & Boschee, 2012; Marlow & Minehira, 1996; Sorenson, Goldsmith, Mendez, & Maxwell, 2011; Stark et al., 2002; Wiles, 2009), reflections on how the professional support for HoDs in this study played out in practice suggest that for HoDs of TVET institutions to demonstrate effective curriculum leadership, they need to possess three professional competencies: curriculum design, management, and leadership. These three competencies refer to knowledge, skills, and attitudes needed by HoDs to lead sustainable curriculum design practices.

Curriculum design competency is needed to handle the technical curriculum development tasks and activities such as conducting a needs analysis, annual program reviews, course evaluations, and curriculum mapping. Management competency is

needed by HoDs to conduct the several administrative tasks necessary to facilitate the various curriculum development activities. These tasks include, for example, developing curriculum work structures and action plans, assigning curriculum design tasks, and locating/allocating resources for the curriculum work. Leadership competency includes tasks such as motivating teachers to participate in curriculum development activities, establishing a shared vision, resolving conflicts, and promoting collaboration. The leadership tasks are highly contextual, more proactive, and more personal than the managerial tasks (Fidler, 1997).

Teacher Collaborative Curriculum Design

In this study, despite the novelty and difficulty for the TCCD teams to apply a systematic and relational approach, these teams achieved tangible outcomes that positively contributed to the internal and external consistency of their curricula, as perceived by the TCCD teams. This suggests that *professionally-supported* TCCD teams can function as an institution-based curriculum development strategy for ongoing curriculum renewals at TVET institutions in developing countries. It seems to be a timely and financially appropriate solution for the reportedly stagnant curriculum development activities at these institutions, as it would require less spending on external curriculum development support.

While the TCCD teams in this study managed, to some degree, to conduct activities associated with internal and external curriculum consistency, they encountered several challenges that the senior managers of TVET institutions and probably higher government bodies would need to address. For internal consistency, the TCCD teams were missing a national or regional accreditation framework with which to align elements such as program's learning outcomes and program/course credit hours. Moreover, the teams still need ongoing professional support so as to establish coherence between the curriculum components (e.g., goals, content, instructional approaches, and assessment) and between the curriculum representations (e.g., the planned, enacted, and attained curriculum). For external consistency, organisational support appears to be more critical for TCCD teams in TVET institutions. Although it was difficult for the TCCD teams in this study to approach businesses and industry (without prior official coordination by the institution) and to involve them as co-designers of their educational programs, the study suggests that once stakeholders are involved, they are positively inclined to participate.

Threats to Sustainable Curriculum Leadership and TCCD

The intervention in this study succeeded in achieving its short-term goals of both professional development and curriculum development outcomes. The intervention helped the teachers and HoDs learn about curriculum design and curriculum

leadership, develop curriculum policies, and improve the clarity, detail, and consistency of their formal curricula. Although assessing the achievement of the intervention's long-term goals (i.e., adopting a systematic and relational approach to curriculum design and maintaining effective curriculum leadership and TCCD practices by academic departments) was beyond the scope of this study, the findings of this study reveal some positive indicators. These include the HoDs' and teachers' buy-in to the curriculum design approach and to the strategies of curriculum leadership and TCCD, and their intention to complete the remaining parts of the curriculum renewal project. However, the achievement of the intervention's long-term goals is quite likely to be hampered by a number of threats.

One threat concerns the inadequate organisational support that teachers and HoDs receive from senior management in forms such as encouragement, follow-up on their curriculum work, and monetary incentives (Ottevanger, Van de Grint, & Ana'am, 2010). The findings also suggest an expectation gap between the middle and senior management regarding curriculum development responsibilities and the support needed. Personal communication with the senior managers revealed that the college's budgetary constraints and their busy administrative agendas hindered them from providing the support needed by HoDs and teachers. It seems quite critical that the senior management of TVET institutions hold regular meetings with HoDs and teachers to ensure that curriculum development expectations are collectively developed and shared (Wiles, 2009).

Another threat to the sustainability of curriculum leadership and TCCD lies in the high rate of teacher and HoD attrition and mobility in such contexts, due to unsupportive work conditions and the constant search of these critical curriculum stakeholders for better job offers from industry or private educational institutions (Akomaning, 2012; Gervedink Nijhuis et al., 2012). Both the government and the senior management of the TVET institutions need to make sure that HoDs and teachers are adequately supported in meeting the expectations to maintain the quality and relevance of the vocational curriculum. Sustainable curriculum development requires a stable work environment and a high level of ownership by senior management (Akomaning, 2012; Ottevanger et al., 2010).

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