Professionalization of Curriculum Design
Practices in Technical Vocational Colleges

Curriculum Leadership and Collaboration

Nabeel M. Albashiry

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PROFESSIONALIZATION OF CURRICULUM DESIGN PRACTICES
IN TECHNICAL VOCATIONAL COLLEGES:
CURRICULUM LEADERSHIP AND COLLABORATION

DISSERTATION

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the degree of doctor at the University of Twente,
on the authority of the rector magnificus,
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on account of the decision of the graduation committee
to be publicly defended
on Wednesday 26th of August 2015 at 14:45

by

Nabeel M. Albashiry

born on 1st of January, 1978
in Hajjah, Yemen

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This dissertation has been approved by the promotors.

To

*my supportive and loyal wife and to my children who both have endured the hardships
of me being away from them for several times during my PhD*

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS

LIST OF FIGURES AND TABLES

VI

LIST OF ABBREVIATIONS

VII

CHAPTER 1 - INTRODUCTION

1

1.1 PROBLEM DEFINITION

1

1.1.1 TVET curriculum development in developing countries

1

1.1.2 Research problem

2

1.2 STUDY CONTEXT

3

1.2.1 TVET in Yemen

3

1.2.2 Emergence of community colleges in Yemen

4

1.3 CONCEPTUAL FRAMEWORK

5

1.3.1 Curriculum and curriculum design

5

1.3.2 Curriculum internal and external consistency

6

1.3.3 Nature of the TVET curriculum

7

1.3.4 Curriculum leadership

7

1.3.5 Collaborative curriculum design

8

1.4 RESEARCH QUESTIONS

9

1.5 RESEARCH DESIGN

10

1.5.1 Educational design research

10

1.5.2 Case study approach

11

1.6 DISSERTATION SYNOPSIS

12

CHAPTER 2 - CURRICULUM DESIGN PRACTICES OF A VOCATIONAL COMMUNITY COLLEGE IN A DEVELOPING CONTEXT: CHALLENGES AND NEEDS

17

2.1 INTRODUCTION

17

2.2 STUDY CONTEXT

18

2.3 CURRICULUM DESIGN

19

2.4 METHODS

21

2.4.1 Participants

21

2.4.2 Data collection and analysis

21

2.5 FINDINGS

24

2.5.1 How do the teachers and management approach curriculum design both as a blueprint and as a process?

24

2.5.2 What are the main hindering and supporting factors affecting curriculum design practices?

28

2.5.3 What kind of organizational and professional development support do the study departments need to improve curriculum design practices?

29

2.6 CONCLUSION AND DISCUSSION

29

2.7 IMPLICATIONS FOR PRACTICE

31

CHAPTER 3 - IMPROVING CURRICULUM DEVELOPMENT PRACTICES IN A TECHNICAL VOCATIONAL COMMUNITY COLLEGE: EXAMINING EFFECTS OF A PROFESSIONAL DEVELOPMENT ARRANGEMENT FOR MIDDLE MANAGERS	33
3.1 INTRODUCTION	33
3.2 STUDY CONTEXT	34
3.3 CONCEPTUAL FRAMEWORK	35
3.3.1 <i>Curriculum development and curriculum leadership</i>	35
3.3.2 <i>Professional development on curriculum development</i>	37
3.3.3 <i>Research questions</i>	37
3.4 METHODS	38
3.4.1 <i>Participants</i>	38
3.4.3 <i>Data collection and analysis</i>	41
3.5 FINDINGS	44
3.5.1 <i>How do the middle managers perceive the relevance of the PDA-1 to their work?</i>	44
3.5.2 <i>What are the effects of the PDA-1 on the middle managers' learning about curriculum development?</i>	45
3.5.3 <i>What are the effects of the PDA-1 on the middle managers' curriculum development practices?</i>	48
3.6 DISCUSSION AND CONCLUSION	50
3.7 IMPLICATIONS AND REFLECTIONS	51
CHAPTER 4 - CURRICULUM LEADERSHIP IN ACTION: A TALE OF FOUR COMMUNITY COLLEGE HEADS OF DEPARTMENT LEADING A CURRICULUM DEVELOPMENT PROJECT	53
4.1 INTRODUCTION	53
4.2 CONCEPTUAL FRAMEWORK	54
4.3 METHODS	56
4.3.1 <i>Case and participants</i>	56
4.3.2 <i>Study context</i>	56
4.3.3 <i>Procedures</i>	57
4.3.4 <i>Researcher positionality</i>	58
4.3.5 <i>Data collection and analysis</i>	58
4.4 FINDINGS	61
4.4.1 <i>How did the HoDs perceive their role as curriculum leaders after receiving relevant training and assistance?</i>	61
4.4.2 <i>How did the HoDs enact the four basic curriculum leadership tasks during the curriculum development project?</i>	61
4.4.3 <i>What was the support needed and the challenges encountered by the HoDs during the curriculum development project?</i>	64
4.5 CONCLUSION	66
4.6 DISCUSSION AND IMPLICATIONS FOR PRACTICE	66

CHAPTER 5 - TEACHER COLLABORATIVE CURRICULUM DESIGN IN TECHNICAL VOCATIONAL COLLEGES: A STRATEGY FOR MAINTAINING CURRICULUM CONSISTENCY?	69
5.1 INTRODUCTION	69
5.2 CONCEPTUAL FRAMEWORK	71
5.2.1 <i>Relevant approaches to TVET curriculum design</i>	71
5.2.2 <i>Potentiality of teacher collaborative curriculum design in enhancing curriculum consistency</i>	72
5.3 METHODS	73
5.3.1 <i>Case and participants</i>	73
5.3.2 <i>Study context</i>	74
5.3.3 <i>Procedures</i>	75
5.3.4 <i>Data collection and analysis</i>	75
5.4 FINDINGS	77
5.4.1 <i>The curriculum re-design undertaking and its outcomes</i>	77
5.4.2 <i>Teachers' perceptions of TCCD process and outcomes</i>	81
5.5 CONCLUSIONS AND DISCUSSION	83
CHAPTER 6 - CONCLUSIONS & REFLECTIONS	87
6.1 RESEARCH RECAP	87
6.2 SUMMARY OF FINDINGS	88
6.2.1 <i>First sub-study: Context and needs analysis</i>	88
6.2.2 <i>Second sub-study: First professional development arrangement (PDA-1)</i>	88
6.2.3 <i>Third sub-study: Second professional development arrangement (PDA-2)</i>	89
6.2.4 <i>Fourth sub-study: Teacher collaborative curriculum design</i>	90
6.3 OVERALL CONCLUSIONS	91
6.4 REFLECTIONS ON RESEARCH METHODOLOGY	93
6.4.1 <i>Educational design research</i>	93
6.4.2 <i>Case study approach</i>	94
6.5 REFLECTIONS ON RESEARCH OUTCOMES	95
6.5.1 <i>Two explanations for status quo of TVET curricula</i>	95
6.5.2 <i>Challenges associated with the position of HoD</i>	96
6.5.3 <i>Model for curriculum leadership competency of HoDs</i>	96
6.5.4 <i>Teacher collaborative curriculum design</i>	98
6.5.5 <i>Internal and external curriculum consistency: Improvements and further support</i>	99
6.5.6 <i>Achievement of intervention goals</i>	99
6.5.7 <i>Design principles</i>	100
6.6 RECOMMENDATIONS	103
6.6.1 <i>Recommendations for governments</i>	103
6.6.2 <i>Recommendations for senior management of TVET institutions</i>	103
6.6.3 <i>Recommendations for middle management of TVET institutions</i>	104
6.6.4 <i>Recommendations for future research</i>	104
REFERENCES	107

NEDERLANDSE SAMENVATTING	117
INLEIDING	117
ONDERZOEKSVRAGEN	118
METHODOLOGIE	118
BELANGRIJKSTE BEVINDINGEN	119
<i>Studie 1: Context- en behoefteanalyse</i>	119
<i>Studie 2: Eerste professionaliseringsprogramma</i>	119
<i>Studie 3: Tweede professionaliseringsprogramma</i>	120
<i>Studie 4: Gezamenlijk curriculum ontwerpen door docenten</i>	120
CONCLUSIE	121
APPENDICES	123
APPENDIX A: INSTRUMENTS USED FOR CHAPTER 2	124
<i>Appendix A-1: Interview Scheme for the Executive Council of Community Colleges (ECCC)</i>	124
<i>Appendix A-2: Interview Scheme for SCC Senior Management</i>	125
<i>Appendix A-3: Interview Scheme for SCC Middle Management</i>	126
<i>Appendix A-4: Teacher Questionnaire</i>	128
<i>Appendix A-5: Student & Alumnus Questionnaire</i>	135
<i>Appendix A-6: Course Description Analysis Check list</i>	138
<i>Appendix A-7: A Check list for measuring the quality of course learning objectives</i>	139
APPENDIX B: INSTRUMENTS USED FOR CHAPTER 3	140
<i>Appendix B-1: Questionnaire # 1 (participants' reaction questionnaire)</i>	140
<i>Appendix B-2: Questionnaire # 2 (participants' perceptions of their knowledge of curriculum design)</i>	142
<i>Appendix B-3: Pre-intervention Interview</i>	143
<i>Appendix B-4: Post-intervention interview (1)</i>	144
<i>Appendix B-5: Post-intervention interview (2)</i>	145
<i>Appendix B-6: Course Description Analysis Check list</i>	146
APPENDIX C: INSTRUMENTS USED FOR CHAPTER 4 & 5	147
<i>Appendix C-1: Interview Scheme for Heads of Department</i>	147
<i>Appendix C-2: Interview Scheme for Teachers</i>	150
APPENDIX D: PICTURES FROM THE PDA-1 & PDA-2 ACTIVITIES	152
<i>Appendix D-1: Pictures of some plenary sessions attended by teachers, middle management and senior management</i>	152
<i>Appendix D-2: Pictures from some training sessions</i>	153
<i>Appendix D-2 (continued): Pictures from some training sessions</i>	154
<i>Appendix D-3: Pictures from some TCCD activities</i>	155
APPENDIX E: EXAMPLE CURRICULAR ARTIFACTS DEVELOPED BY TCCD TEAMS	156
<i>Appendix E-1: A new outline for an educational program</i>	156
<i>Appendix E-1 (continued): A new outline for an educational program</i>	157
<i>Appendix E-2: A newly developed curriculum map</i>	158
<i>Appendix E-3: A new brief course description*</i>	159
APPENDIX F: EXAMPLE TEMPLATES AND EXEMPLARY MATERIALS PROVIDED TO TCCD TEAMS	160
<i>Appendix F-1: An example of exemplary materials (formulation of program learning outcomes)</i>	160
<i>Appendix F-2: An example template (a course description template)</i>	161

LIST OF FIGURES AND TABLES

Figures

- 1.1 Generic model for conducting educational design research
- 1.2 First round of intervention
- 1.3 Second round of intervention
- 6.1 Curriculum leadership competency model for Heads of Department

Tables

- Table 1.1 EDR characteristics as applied in this study
- Table 2.1 Study participants per curriculum level
- Table 2.2 An overview of the data collection methods per research question
- Table 2.3 Constructs within the student questionnaire
- Table 2.4 Constructs within the four scales of the teacher questionnaire
- Table 2.5 Availability of the ten curriculum components in the college course descriptions
- Table 3.1 Participants' characteristics
- Table 3.2 PDA main activities, purposes, and relevant design principles
- Table 3.3 Data collection methods per research question
- Table 3.4 Results of the coding process
- Table 3.5 Participants' reaction to PDA delivery strategies
- Table 3.6 Presence of the ten components in the new vs. old course descriptions
- Table 4.1 Characteristics of participating HoDs
- Table 4.2 Data resources per research question
- Table 4.3 The data coding outputs
- Table 5.1 Background information about participants
- Table 5.2 Data collection methods per research question
- Table 5.3 Deductive and inductive data analysis per research question
- Table 5.4 Teams' collaborative curriculum design outcomes
- Table 5.5 Activities related to establishment of curriculum internal and external consistency
- Table 6.1 Evolvement and outcomes of the study intervention

LIST OF ABBREVIATIONS

CD	Curriculum Design
ECCC	Executive Council for Community Colleges
EDR	Educational Design Research
HoD	Head of Department
HoDiv	Head of Division
PDA	Professional Development Arrangement
SCC	Sanaá Community College
TCCD	Teacher Collaborative Curriculum Design
TVET	Technical Vocational Education and Training

CHAPTER 1 - INTRODUCTION

This introductory chapter describes the background of this dissertation. The chapter starts with shedding light on the status quo of Technical Vocational Education and Training (TVET) in developing countries, followed by a description of the research problem. Next, the study context is illuminated by describing the TVET in Yemen and the emergence of Community Colleges. After that, the conceptual framework underpinning this study is briefly presented and followed by the study research questions. Then, the research design genre (educational design research) and the research approach (case study) that guided this empirical investigation are discussed and justified. The chapter concludes with a synopsis of the four sub-studies that make up this dissertation.

1.1 Problem Definition

1.1.1 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 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 constant interest in TVET can be captured in the establishment of ministries for this particular type of education (e.g., Yemen), the upgrading of polytechnics to a tertiary status (e.g., Ghana), the expansion of TVET institutions (e.g., 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; Shumaker, 2013; The European Training Foundation & World Bank, 2004).

A growing bulk of research indicates, however, a gap between the educational programs offered by TVET institutions in developing countries and the needs of the labor market and, hence, hampering the realization of the above 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 the socioeconomic changes that the community and industry keep witnessing (Lai & Lo, 2008; The European Training Foundation & World Bank, 2004; Ziderman, 1997). Employers expect TVET educational programs to not only equip students with adequate entry-level vocational knowledge but also to provide them with a broad array of generic and

entrepreneurial skills that render the graduates adaptable to work environment, able to learn new things on the workplace, aware of work ethics, and capable of working independently (Baqadir et al., 2011; Boateng, 2012a; Lai & Lo, 2008). This necessitates that TVET curricula be broad in goals and content (Finch & Crunkilton, 1999).

This vocational gap stems from various challenges that the TVET institutions in developing countries encounter when striving to maintain the consistency of their programs to the stakeholders' needs. One setback lies in the reported inadequate collaboration between industry and TVET institutions on curriculum development matters, causing an expectations gap between these two parties (Akomaning, Voogt, & Pieters, 2011; Bakah et al., 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 a necessary input for valid TVET curriculum updating (Lumby, 2000).

However, a major challenge receiving an increasing attention both in literature and in practice concerns the low capacity of the academic management of TVET institutions to lead and 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 contexts, are usually promoted to these leading positions based on their teaching seniority, without going through adequate professional preparation, assuming that good teachers can be good leaders (Mattar, 2012; Yielder & Codling, 2004). While academic managers (e.g., Deans, vice-Deans, and HoDs) of educational institutions, including TVET, are traditionally expected to address management issues such as consensus building, time management, and conflict resolution (Ylimaki, 2012), there is a growing body of analytical and empirical research stressing that academic managers need to assume purposeful curriculum leadership, ensuring that student learning is taking place, teachers are being supported, collegiality is encouraged, vision and goals are developed and shared, and curriculum planning efforts are well-coordinated and aligned (Darling-Hammond, Meyerson, LaPointe, & Orr, 2009; Neumerski, 2012; Nguyen, 2012; Wiles, 2009).

1.1.2 Research problem

As established above, TVET institutions in developing countries are expected to develop and maintain educational programs of quality and relevance, thereby contributing to the national development plans of poverty alleviation and economic growth. Unfortunately, a major challenge hampering the realization 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

perspective, it aimed to professionally support HoDs to practice effective curriculum leadership in leading departmental curriculum work and to promote teacher collaborative curriculum design, as both strategies hold great potential for improving the effectiveness of curriculum development activities. From a scientific perspective, the study sought to describe the design and the impact of these 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 towards describing potential strategies for improving its quality and relevance and explaining how these strategies play out in practice.

1.2 Study Context

1.2.1 TVET in Yemen

Yemen, like many other developing countries, encounters development challenges with social, economic, and demographic dimensions such as a high rate of illiteracy, low per capita income, heavy dependence on oil revenues, uneven distribution of the population, and a high population growth rate (The European Training Foundation & World Bank, 2004). Despite these challenges, Yemen has paid increasing attention to TVET. Successive governments have realized the critical role of this form of education in fulfilling the national development plans. In response to increased demands for a skilled middle-level workforce, TVET has been witnessing continuous restructuring and expansion to cover all the governorates of the country, with a mandate to contribute to the social and economic development of the country (UNESCO-UNEVOC, 2013). To accommodate this expansion, TVET was assigned an independent ministry in 2001 after it had previously been an administrative body attached to the Ministry of Education.

However, national and international reports congruently indicate that the TVET sector in Yemen needs to address a number of issues impeding the realization of its mandate (e.g., Ministry of Technical Vocational Education and Training, 2005; The European Training Foundation & World Bank, 2004; UNESCO-UNEVOC, 2013). Aside from implying a need for more financial allocations to TVET, these reports highlight four areas requiring urgent attention. First, although successive governments clearly focus on expanding TVET institutions and increasing the enrollment of students in this educational track, there is a need for a *parallel* attention to both the quality of the curricula offered by these institutions and the professional development of the managers and teachers so that they can better devise, implement, and manage the various administrative and educational processes associated with this form of education. Second, given its recent establishment, there is a need for establishing a shared vision and more coherent frameworks for the several bodies within the Ministry of TVET and among concerned stakeholders. This is essential in order to handle the many complications and administrative layers so as to ensure successful implementation of intended plans. Third, gathering quality data about the TVET graduates and their employers is another area awaiting improvement as this better informs policy development and strategic planning. Fourth, establishing/improving educational frameworks

(accreditation standards) for the educational programs and training modules is critical as this would facilitate the evaluation and updating of these programs.

These contextual constraints have cast a shadow on how curriculum design is approached in TVET institutions across the country. For example, TVET degree programs do not follow clear and specific standards pertaining to their learning outcomes/competencies, pedagogy, and assessment (The European Training Foundation & World Bank, 2004). Further, rarely are TVET educational programs systematically updated following their inception, and seldom are industry and businesses involved in curriculum (re)development processes, rendering TVET programs supply-driven rather than demand-driven (The European Training Foundation & World Bank, 2004). Moreover, the TVET curriculum is mostly theoretical, with little focus on practical skills and limited use of information and communication technologies in teaching and learning (World Bank, 2007).

1.2.2 Emergence of community colleges in Yemen

Community colleges in Yemen were established by a presidential decree (No. 5 for 1996) which stated that this form of post-secondary education should serve four goals: 1- producing qualified middle-level professionals to meet the country development demands, 2- reinforcing the community participation in disseminating education, 3- establishing a flexible form of post-secondary education that is adaptable to changes in the labor market, and 4- improving the performance of the public workforce through providing them with training opportunities. Starting in the academic year 2000-2001 with one community college in the capital city, there are now ten public community colleges in the country. These colleges mainly offer three-year specialized degree programs with the 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). Few community colleges are now offering four-year bachelor programs through the Higher Technical Education Project which is supported by the Dutch government.

Community colleges were initially under the supervision of the ministry of Higher Education but were later attached to the Ministry of TVET to emphasize their technical and vocational orientation. 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 (Alzubairi, 2009).

1.3 Conceptual Framework

In this section, a brief conceptualization of the major themes in this study is presented.

1.3.1 Curriculum and curriculum design

The concept of 'curriculum' in this dissertation is used broadly to refer to the academic plans or blueprints that an educational institution develops 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 minimizing potential problems during the implementation of these plans. Thus, Van den Akker (2003) suggests an elaborate list of ten curriculum components comprising rationale, objectives, content, learning activities, teacher role, materials and resources, grouping, location, time, and assessment. Conceptualizing 'curriculum' into a set of representations also helps understand the applied connotation of the concept. The 'curriculum' is usually manifested in three major representations (Goodlad, Klein, & Tye, 1979): 1- the planned/formal curriculum (the educational intentions as described in the academic plans such as program/course descriptions), 2- the enacted curriculum (i.e., curriculum in action), and 3- the attained curriculum (the resultant student learning). In this research, the focus was on the first representation as the exploratory study (chapter 2) revealed major problems with the formal curriculum of the community college under study.

Curriculum design or curriculum development (used interchangeably in this dissertation) can be defined as a lengthy and iterative process of planning, designing, implementing, and evaluating the student learning experiences in order to realize 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 synthesized 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 paradigm of the two constitutes 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 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* recognizes the social context of the design. Design models within this paradigm are mostly influenced by Walker's (1971, 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).

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 (1999) postulates a blend of both systematic and relational approaches as these approaches lead to internally and externally consistent curriculum (see section 1.3.2). Kessels' blend also holds great promise for the (re)development of the TVET curriculum, given its unique features (see section 1.3.3).

1.3.2 Curriculum internal and external consistency

The simultaneous application of systematic and relational curriculum design approaches, discussed above, are needed to realize curriculum consistency, which is a defining feature of curriculum quality (Kessels, 1999; Kessels & Plomp, 1999). The curriculum is considered consistent when the curriculum design aspects and activities are coherent and aligned both internally and externally. Curriculum external consistency refers to the congruence in the perceptions of the concerned stakeholders about what the curriculum outcomes are, and how they can be realized (Kessels & Plomp, 1999). While curriculum external consistency is clearly defined in literature, curriculum internal consistency is diversely conceptualized.

From a corporate education perspective, Kessels (1999) conceptualizes internal consistency as the logical associations between three major elements:

- 1- the desired changes (extracted from needs assessment),
- 2- the required competencies of the learners (to realize these changes), and
- 3- the learning situations (conducive to the development of these competencies, e.g., learning materials and instructional strategies).

Applying this conceptualization to a TVET context, internal consistency would then refer to the harmony between 1- the TVET outcomes/expectations (as determined by relevant stakeholders such as the government, industry, and community), 2- the TVET students' competencies necessary to meet these expectations, and 3- the learning environment conducive to the realization of these competencies. Kessels' articulation of 'internal consistency' suggests and implies the importance of the coherence between the phases of the systematic design process, notably between the analysis phase (i.e., identifying the desired changes) and the design phase (i.e., determining learning goals and the other curriculum design aspects).

From a schooling perspective (K-12 and tertiary education), McKenney, Nieveen, and Van den Akker (2006) conceptualize curriculum internal consistency into three forms: 1- connectedness of the curriculum components (e.g., rationale, goals, content, instructional strategies, and assessment), 2- coherence between curriculum representations (i.e., the intended, the enacted, and the attained curriculum), and 3- harmony between the curriculum and the educational institution/system (e.g., school development and teacher development). The authors contend that a 'high-quality curriculum' should seek to address these forms of internal consistency, and that failure to do so can greatly affect curriculum implementation.

Curriculum internal consistency can be achieved through successful application of a systematic approach, whereas curriculum external consistency can be realized by the adoption of a relational approach (Kessels, 1999; Kessels & Plomp, 1999). Both types of consistency form an integral part of the curriculum quality and greatly contribute to effective curriculum implementation as noted above. Empirical evidence indicates positive curricular outcomes of attending to these forms of curriculum consistency through applying systematic and relational approaches (e.g., Akomaning et al., 2011; Bakah et al., 2012b; Huizinga, Handelzalts, Nieveen, & Voogt, 2015). These outcomes include better curriculum alignment with a regional K-12 curriculum framework, improved TVET internship curriculum and practices, and successful updating of TVET courses.

1.3.3 Nature of the TVET curriculum

Technical and vocational education is a complex and expensive form of education that differs from general education in its focus, orientation, assessment standards, and delivery mode (Finch & Crunkilton, 1999). One distinct characteristic of the TVET curriculum is that besides its emphasis on providing adequate vocational knowledge, it also stresses the provision of hands-on learning experiences, furnishing students with an array of broad skills that would enable them to work independently and adapt to different work environments (Boateng, 2012a; Lai & Lo, 2008). Another feature of the TVET curriculum is the need for constant update for its content and delivery mode so that it is responsive to the changing needs of the labor market (Agrawal, 2012; Ziderman, 1997). Further, the 'quality' of the TVET curriculum is judged not only by how well the graduates have achieved the program outcomes, but by "the extent to which a curriculum assists students to enter and succeed in the work world" (Finch & Crunkilton, 1999, p. 18). Realizing TVET curricula of quality is achieved through conducting regular and *systematic* renewals (Boateng, 2012b; Finch & Crunkilton, 1999) and through applying a *relational* approach in the curriculum (re)-design process whereby all concerned stakeholders (e.g., industry, businesses, teachers, and curriculum designers) hold extensive deliberations to reach consensus on what the curriculum should be like (cf. Kessels, 1999). The unique nature of TVET curricula and the curricular challenges of maintaining their quality and relevance demand competent managers with leadership skills both in management and curriculum planning (Boateng, 2012b; The European Centre for the Development of Vocational Training, 2011).

1.3.4 Curriculum leadership

With educational decentralization gaining momentum, including TVET, and the resulting shift in responsibilities and roles played by all stakeholders, there is an increasing pressure on the academic managers of educational institutions to achieve better educational outcomes (Dinham, 2005; Gajardo & Carmenado, 2012; The European Centre for the Development of Vocational Training, 2011). Academic managers are increasingly expected to move beyond the traditional administrative role, attending more to their role as curriculum leaders: planning educational programs, maximizing the learning experiences of students, and attending to external and internal curricular influences (Fullan, 2007; Darling-Hammond et al., 2009; Dinham, 2005; 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 argues 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 of which curriculum development is at the core (Dinham, 2005). Conceptualizing the daily leadership activities of academic managers (school principals) into 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 of curriculum problems and opportunities, creating structures for teacher collaboration, and introducing proposals for curricular change (Stark, Briggs, & Rowland-Poplowski, 2002).

Realizing the critical role academic managers can play in maintaining and advancing curricula, there is clear emphasis in literature regarding the provision of continuing professional support for academic managers in order for them 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 better 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; Wolverson, Ackerman, & Holt, 2005).

1.3.5 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 recognized curriculum design strategy because of its reported significant contributions to the professional development of teachers in areas such as subject matter knowledge and systematic curriculum design skills (Bakah, 2011; Huizinga et al., 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 et al., 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 ones that are authentic and site-based. ‘Agency’ concerns the teachers’ ownership and the individual and collective responsibility of 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: sensing a problem, analyzing it, developing a solution, and experimenting with the new solution.

In a TVET context, teacher collaboration needs to extend in a way that involves employers and industry representatives in order to establish the curriculum external consistency (Kessels, 1999; Finch & Crunkilton, 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 a great potential of TCCD for improving this form of curriculum consistency. Akomaning (2012) investigated how TCCD, which 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, which involved industrial visitation by teachers to update their knowledge about 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 other studies (e.g., Nihuka, 2011) suggest that TCCD is an efficient strategy that can simultaneously improve teacher learning and the curriculum aspect being (re-)designed.

1.4 Research Questions

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 both kinds of consistency of their curricula. Thus, the overall research question of this study is:

How can professional development support help TVET college middle managers and teachers improve their curriculum design practices towards enhanced curriculum consistency? This overall question was answered by conducting four sub-studies each of which addressed one of the following research questions respectively.

- 1- How do middle managers and teachers in TVET community colleges approach curriculum design, and what challenges and needs do they have in designing their curricula?

- 2- What impact can a professional development arrangement have on improving curriculum leadership of college middle managers?
- 3- How do middle managers perceive and enact curriculum leadership tasks within curriculum development projects?
- 4- What is the potential of teacher collaborative curriculum design for improving the external and internal consistency of TVET curricula?

1.5 Research Design

1.5.1 Educational design research

Given the naturalistic, social, and complex aspects of this study along with its dual purpose of solving an educational problem and contributing to scientific knowledge, educational design research was adopted as an overall research methodology guiding this multiple-study research. Educational design research can be defined as “a genre of research in which the iterative development of solutions to practical and complex educational problems also provides the context for empirical investigation, which yields theoretical understanding that can inform the work of others” (McKenney & Reeves, 2012, p. 7). Educational design research is a systematic but flexible methodology that entails the collaboration between researchers and stakeholders in a real-world setting (Wang & Hannafin, 2005). Barab and Squire (2004) further explain that this research genre “focuses on understanding the messiness of real-world practice, with context being a core part of the story and not an extraneous variable to be trivialized” (p. 3). They also stress that this type of research should view research participants as ‘co-participants’ rather than research ‘subjects’.

McKenney and Reeves (2012) identified five defining characteristics of educational design research: interventionist, theoretically oriented, collaborative, responsively grounded, and iterative. Table 1.1 explains these characteristics and shows how they were mirrored in this research study.

Table 1.1 *EDR* characteristics as applied in this study*

EDR* Characteristic	Description (McKenney & Reeves, 2012)	Application
Interventionist	EDR* seeks to impact practice by making a change through, for example, developing curricular artefacts, establishing new practices, and training teachers.	The intervention was a <i>professional development arrangement</i> which occurred in two rounds. The intervention aimed to improve the curriculum design and leadership capacity of HoDs and teachers towards better curriculum consistency. The arrangement included in-service training, curriculum policy development, use of templates, and actual development of the formal curriculum.
Theoretically oriented	The relationship between theory and design in EDR is reciprocal. Theoretical insights initially inform the design of the intervention and the empirical findings resulting from the EDR can, in turn, enrich and refine the initial theoretical understanding.	The design of the intervention was inspired and informed by theoretical concepts such as effective professional development, curriculum leadership, systematic and relational approaches to curriculum design, and TCCD. The empirical investigation that accompanied the intervention provided, in turn, context-based understanding of these concepts.
Collaborative	EDR requires the collaboration of all stakeholders concerned with the problem.	Besides being study subjects, the study participants played the role of co-designers and decision makers during the intervention.
Responsively grounded	EDR is dynamic and open to new insights from literature, field testing, and participants' expertise.	From a literature perspective, it turned out that: <ul style="list-style-type: none"> - HoDs do not only need conceptual knowledge about curriculum design but also about curriculum leadership - Teachers also need to be trained on curriculum design as they are key players - Provision of theoretical knowledge is not adequate of itself; HoDs and teachers need to apply and contextualize what they learn. - From a context perspective, the intervention was constantly responsive to the participants' needs and contextual constraints (e.g., time, space, participants' abilities, and type/quantity of the curricular artefacts to be developed).
Iterative	EDR occurs through multiple iterations of development and refinement to reach better results.	Due to the scope of the study, there were two rounds of the intervention. Within each round were several activities. The first round targeted the professional development of the college middle managers (HoDs and Heads of Division) with focus on affording them basic knowledge of curriculum design. The second round included further professional support for HoDs (on curriculum leadership) and for teachers (on basics of curriculum design) besides actual curriculum development.

Note * EDR = educational design research

1.5.2 Case study approach

As educational design research does not aim to isolate variables and make generalizable claims (Kelly, 2006), 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 generalization'; it rather endeavored to contribute to the theoretical understanding (analytical generalization) of the phenomenon under study (i.e., 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 research study used a mixed-method design (the first and the second sub-studies) and a qualitative design (the third and the fourth sub-studies) based on the purpose and scope of each sub-study. Each sub-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 interview guides, observation guides, curriculum 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 the SPSS statistical software.

1.6 Dissertation Synopsis

The flow of the empirical investigation in this study was inspired by the generic model for conducting educational design research proposed by McKenney and Reeves (2012) as shown in Figure 1.1. An overview of the four sub-studies that made up this dissertation will be presented next with reference to this model.

Figure 1.1 Generic model for conducting educational design research (McKenney & Reeves, 2012)

The first sub-study (Chapter 2) aligned itself with the *Analysis and Exploration* phase of the model. This context and needs analysis sub-study aimed to gain a better understanding of the curriculum problem, its roots, and its complexity, and the needs of the target practitioners (HoDs and teachers). This initial sub-study also sought to develop tentative goals and design specifications for a potential intervention based on the study findings and the literature review conducted. The overall question of this study was “How do middle

managers and teachers in TVET community colleges approach curriculum design, and what challenges and needs do they have in designing their curricula?”. This question was answered through a single case study approach with a mixed-method design. The case was ‘curriculum design practices’, the context was Sanaá Community College, and the units of analysis were the students, teachers, middle managers, senior managers, a government official, and curriculum documents. Several data collection methods (questionnaires, interview guides, and curriculum documents) were used, and participants at several hierarchical levels were involved in this sub-study in order to get a comprehensive picture of the problem at stake.

The second sub-study (Chapter 3) reported on the first round of the intervention which stands for the first cycle of *Design and Construction* in the model. Based on the findings of the first sub-study and the deliberations between the researcher and the middle and senior management, it was decided that the professional capacity of the middle managers (HoDs and Heads of Division) in terms of curriculum design needed to be improved through a professional development arrangement (PDA-1). The PDA-1 comprised several activities (Figure 1.2), which aimed to first improve the college middle managers’ learning about systematic and relational curriculum design and second support them in developing college-wide curriculum development policies, such that they could apply the new learning and the policies developed in the long run. The purpose of this sub-study was to empirically describe the design and the impact of the PDA-1 at three levels: the participants’ reactions to the relevance of the PDA-1, their learning about curriculum design, and their post-intervention curriculum leadership practices. The sub-study adopted a single case study approach with a mixed-method design. The case was the PDA-1, the context was Sanaá Community College, and the units of analysis were the middle managers. The sub-study addressed the overall research question: “What impact can a professional development arrangement have on improving curriculum leadership of college middle managers?”. Thirteen out of 16 middle managers voluntarily participated in this study, and several data collection methods (questionnaires, interviews, curriculum documents, and field notes) were used to achieve triangulation.

Figure 1.2 First round of intervention

The third sub-study (Chapter 4) reported on the second round of the intervention which represents the second cycle of *Design and Construction* in the model (Figure 1.1). Based on the *Evaluation and Reflection* of the first cycle of the intervention along with new insights from literature and participants, the second cycle took the form of another professional

development arrangement (PDA-2) as illustrated in Figure 1.3. The PDA-2 involved both HoDs and teachers and had two main components: professional development and curriculum development. For the professional development part, the HoDs received another round of training with the focus this time being on curriculum leadership whereas the participating teachers received training on the basics of curriculum design. For the curriculum development part, the participants worked on redesigning their educational programs in four design teams led by the HoDs, focusing on updating the relevance of their educational programs to the labor market needs and the re-writing of the formal curriculum (program and course descriptions) with more clarity and detail.

Figure 1.3 Second round of intervention

Conceptualizing curriculum leadership into four major tasks, the purpose of this sub-study was to empirically describe how the HoDs perceived and enacted curriculum leadership during the curriculum development project and identify the challenges encountered during the purposeful enactment of the curriculum leadership tasks. This sub-study adopted an embedded multiple-case design (Yin, 2003) with a qualitative approach. Attention was given to the context (the college), the cases (the curriculum development projects), and the units of analysis (the participating HoDs). The sub-study addressed the overall question: *“How do middle managers perceive and enact curriculum leadership tasks within curriculum development projects?”*. Four HoDs and eight teachers voluntarily participated in the study. Five sources of data collection were used to answer the research question: 1- interviews of HoDs, 2- interviews of teachers, 3- minutes of teams’ meetings, 4- observation notes of teams’ meetings, and 5- researcher’s field notes. Data were analyzed both deductively and inductively through a systematic and iterative coding process.

The fourth sub-study (Chapter 5) was also based on the PDA-2. The purpose of this sub-study was to empirically describe how academic departments (i.e., HoDs and teachers) in TVET community colleges, after receiving relevant training and assistance (PDA-1 and PDA-2), went about the re-designing of their educational programs systematically and relationally in order to improve their consistency, and how they perceived the process and the outcomes

of such endeavors. This sub-study adopted an embedded multiple-case design (Yin, 2003) with a qualitative approach. The cases were the same four design teams reported in the third sub-study, and the units of analysis were the members of the design teams along with the resultant curricular products. Each team was composed of three teachers including the HoD who functioned as the team leader. The overall question addressed was: *“What is the potential of teacher collaborative curriculum design for improving the external and internal consistency of TVET curricula?”*. Data collection methods included interviews, observation of the teams’ design sessions, teams’ meeting minutes, and the researcher’s field notes. The data were analyzed both deductively and inductively through a systematic and iterative coding process.

Chapter 6 presents the summary of the dissertation findings, overall conclusions, reflections, and recommendations, guided by the two main outputs of educational design research (the practical outcomes and the scientific contributions) as illustrated in Figure 1.1.

CHAPTER 2 - CURRICULUM DESIGN PRACTICES OF A VOCATIONAL COMMUNITY COLLEGE IN A DEVELOPING CONTEXT: CHALLENGES AND NEEDS¹

Aligning vocational curricula with the labor market needs is a common reported challenge in developing countries. Little is known, however, about how vocational community colleges, in such contexts, regularly review and re-design their curricula to ensure the quality and relevance of their programs. From a curriculum design (CD) perspective, this case study investigated how the management and teachers at a community college in Yemen approached CD both as a blueprint and as a process. It also explored the CD challenges and needs of the study departments. Participants were 199 students, 46 alumni, 45 teachers, and 13 administrators. Data were collected via interviews, questionnaires, and curriculum documents. The curriculum blueprints (e.g., program and course descriptions) were found to be either missing or lacking detail and clarity, and the CD process was mostly content-driven, intuitive, highly individual, and centered around course modifications. Lack of resources, teacher characteristics, and senior management support were found to be major CD challenges. It is concluded that the current CD practices are not conducive to vocational programs with internal and external consistency, and that the reported CD challenges are typically associated with developing contexts. A number of implications for practice are discussed.

2.1 Introduction

Governments in developing countries are increasingly paying more attention to technical and vocational education, with some countries adapting the American community college model, as they believe it will solve various social and economic problems (Wang & Seggie, 2013). This type of education is believed to keep jobless people off the streets, decrease youth unemployment, and feed industry with skilled middle-level professionals (Agrawal, 2012; Zideman, 1997). International organizations like the UNESCO and the World Bank are funding projects in developing countries to improve the capacity of Technical Vocational Education and Training (TVET) institutions so that they can offer programs that meet the needs of the labor market (Gervedink Nijhuis et al., 2012).

Literature addressing the gap between the labor market needs and the outcomes of TVET in developing countries has associated this problem, in part, to deficiencies found in the design and implementation of curricula offered by these institutions (e.g., Agrawal, 2012; Baqadir et

¹ This chapter is based on: Albashiry, N., Voogt, J. M., & Pieters, J. M. (2015). Curriculum design practices of a vocational community college in a developing context: Challenges and needs. *Community College Journal of Research and Practice*. doi: 10.1080/10668926.2014.942894

al., 2011; Lai & Lo, 2008). TVET programs are required to have curricula that not only respond to the current needs of the labor market through providing students with relevant entry-level skills but also to prepare students for life-long learning and adaptability to work environments (Ziderman, 1997). Besides, employers were found to be expecting vocational programs to produce graduates who can learn new things in the workplace, work independently, possess adequate vocational skills and generic knowledge, and be aware of work ethics (Baqadir et al., 2011; Lai & Lo, 2008). Therefore, when TVET curricula are designed or modified, they need to be broad and flexible, and industry representatives need to be involved in the design process (Agrawal, 2012; Finch & Crunkilton, 1999).

Nevertheless, TVET in developing countries encounter a number of challenges in keeping their curricula up to the labor market expectations. These challenges include the inability to have long-term plans due to uncertainty about the kind and amount of resources they will be receiving from the government, the provision of more practical training for their students, and the lack of information about student employment destinations as there are no national statistics, which results in a mismatch between the outcomes of these institutions and employment opportunities (Lumby, 2000). This 'mismatch' was also reported to be a result of the inadequate formal collaboration between these institutions and industries on curriculum development matters (Akomaning et al., 2011). Quality of teachers and educational management in TVET constitutes another challenge for realizing updated and responsive vocational curricula. Teachers were found to have outdated subject-matter knowledge due to inadequate industrial attachment (Bakah et al., 2012a). Further, Heads of Department in these institutions were reported to be lacking adequate knowledge and skills in curriculum design (CD) and academic management, which resulted in study departments that did not have goals, and curricula that had not been reviewed for many years (Gervedink Nijhuis et al., 2012).

2.2 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 with the purpose being to bridge the vocational gap between the outcomes of regular universities and the fast changing needs of the community and labor market (Alzubairy, 2009). Starting in 2000 with three programs developed by a foreign project, SCC currently serves ten diploma programs served by ten departments. An ex-vice Dean pointed out that reviewing and updating the college curricula had been left to the study departments; however, such CD practices, he explained, had been quite limited and based on individual undertakings and personal judgments by the study departments due to the lack of resources and the inadequate expertise of teachers to assume CD roles (personal communication, March 27, 2012).

Although employers were found to be generally satisfied with the types of programs offered by the college then (Alzubairy, 2009), the study findings and recommendations indicated that the college curricula needed important improvements at several fronts. These included the need for integrating new courses to address certain vocational skills, paying more

attention to employability skills, and restructuring the student industrial internship. In addition, it was emphasized that the college curricula be designed in a way that would offer students more hands-on learning experiences.

The purpose of this study is to explore how the management and teachers at this community college plan their curricula to keep it relevant and of high quality, and what CD challenges and needs they might have. The study is of use to the community college under study, and the national and international projects/organizations concerned with advancing the vocational curricula of such institutions. The study findings can also be informative for comparative research. In the next section, we briefly discuss the conceptual framework that has guided the formulation of the study questions, the development of data collection instruments, and the analysis of the findings. It is worth noting that concepts, processes, and activities associated with CD apply in fact to both academic and vocational programs.

2.3 Curriculum Design

In this study the concept of curriculum is defined as “a plan for learning” (Taba, 1962, p. 11). Effective teaching and learning requires careful arrangement, professional instruction, and a global structure to ensure that curricular ‘plans’ are achieving the target ‘learning’ (Diamond, 2008). Within these two realms of ‘planning’ and ‘learning’ lie complex processes, interactions, factors and actors (Marsh & Willis, 1999; McKenney et al., 2006). An important issue in curriculum design is attending to the various components of curriculum (i.e., student learning plan). Van den Akker (2003) provided an elaborate list that comprised rationale, learning objectives, content, learning activities, teacher role, learning materials and resources, grouping, location, time, and assessment.

Curriculum design can be engineered at different levels (e.g., Marsh, 2004; Van den Akker, 2003): the first (*macro*) refers to CD at the ministry/state/district level which takes, for example, the form of establishing accreditation standards; the second (*meso*) concerns CD at the institution level such as planning and reviewing educational programs and courses; the third (*micro*) refers to the curriculum in action (i.e., teaching and learning activities); and the fourth (*nano*) is about the student learning resulting from all the previous curriculum planning and the actual teaching activities. Curriculum problems usually arise from gaps, and inconsistencies between these levels (McKenney et al., 2006).

Curriculum design can also be understood as a plan that either refers to the blueprint of a number of elements along with their arrangement or to the process (steps) to be followed in developing a curriculum (Johnson, 1969). The first (design as a blueprint), which is usually referred to as the formal/written curriculum, can include documents like curriculum standards, program specifications, course descriptions, or lesson plans. The latter (design as a process) can refer to systematic approaches in CD such as Tyler’s rational-linear model (1949). In this study, CD refers to both the blueprint and the process.

Documenting and writing curricula in clear and detailed blueprints is an important CD practice as this facilitates the work of management, teachers, and students. Analytical

literature on course descriptions, for instance, recommends that these curricular blueprints be more detailed and organized as they can assist the performance of both teachers and students through improving communication, clarifying expectations, guiding student learning, and linking courses to the overall curriculum and to the job market (Habaneck, 2005; Wolfe, 2005). However, in practice, these reported uses do not seem to be adhered to as the formal/written curriculum in many institutions is either missing or lacking detail and/or clarity (Habaneck, 2005; Stark, 2000). "In many school organizations, curriculum documents do not exist. Where they do, they don't follow a specified framework, are poorly written, are not up-to-date, and are generally ignored by teachers and school leaders." (Ruebling, Stow, Kayona, & Clarke, 2004, p. 244)

From a process perspective, CD is assumed by curriculum scholars to be a lengthy and iterative process of planning student learning. Such a process has been embodied in many models and approaches in an attempt to capture its salient activities and trajectories with tendency by many to adopt a systematic approach. Most of the current systematic approaches are, however, variants of Tyler's (1949) rational-linear approach which stresses the importance of identifying educational purposes and then designing backward. Although core activities in a systematic CD process such as needs analysis, design, development, and evaluation are common among the various CD models (Gustafson & Branch, 2002), they tend to have dissimilar functions and vary in the emphasis they receive based on what curriculum designers view as a good design process (Visscher-Voerman et al., 1999).

Recently, curriculum designers are, however, adopting an eclectic strategy (a blend of approaches) trying to address the particular context for which the curriculum is designed (Van den Akker, 2003). An example of this blend appears in Kessels' systematic relational approach (1999). Kessels contends that the successful application of a systematic approach can result in a well-structured curriculum with strong 'internal consistency' defined as harmony between elements like needs analysis, learning goals, instructional strategies, and evaluation. However, he stresses that adopting this approach per se does not achieve optimal results. A relational CD approach that involves stakeholders in the design and implementation activities needs also to be considered to realize the curriculum external consistency defined as harmony in the perceptions of stakeholders about what the outcomes are, and how they can be achieved. Kessels' approach seems to be quite relevant to the design of vocational curricula due to the importance of the external consistency of vocational programs as established earlier.

The bulk of research on technical and vocational education in developing countries addresses issues like the challenges of aligning vocational curricula with the needs of the labor market. Little is known, however, about how the teachers and management in these institutions design, document, and review their curricula to ensure the quality and relevance of their programs. From a curriculum design perspective, the study sought to answer the overall question: *"How do middle managers and teachers in TVET community colleges approach curriculum design, and what challenges and needs do they have in designing their curricula?"*. More specifically, the study addressed the following sub-questions:

- 1- How do the teachers and management approach curriculum design both as a blueprint and as a process?
- 2- What are the main hindering and supporting factors affecting curriculum design practices?
- 3- What kind of organizational and professional development support do the study departments need to improve curriculum design practices?

2.4 Methods

Since this study is descriptive in nature and aims at disclosing the contextual aspects of the phenomenon under study, a single case study approach (Yin, 2003) was adopted. In line with Yin's reasoning, this study, like other single case studies, does not attempt to make 'statistical generalization'; it rather endeavors to contribute to the theoretical understanding, 'analytical generalization', of CD practices tackled by a specific group of people in a specific context, thereby focusing research in such a field.

2.4.1 Participants

The participants of this study were selected to represent the four curriculum levels as pointed out in the conceptual framework so that a comprehensive description is attained (see Table 2.1 for an overview). Sampling was conducted on a voluntary basis.

Table 2.1 *Study participants per curriculum level*

	Target participants	No. of participants (%)	Curriculum level
1	The curriculum development official at the Executive Council of Community Colleges (ECCC)	1(100%)*	macro
2	Senior management (TM) at SCC: the Dean, 3 vice-Deans, 4 Heads of Division	3 (1 vice-Dean & 2 Heads of Division) (37.5%)*	meso/micro
3	Middle management (MM) at SCC: 10 Heads of Department	9 (90 %)*	
4	Teachers (n= 71)	45 (63.4 %)*	
5	Senior students (n= 225)	199 (88.4 %)*	micro/nano
6	Recent alumni (n= 286)	46 (16 %)*	

Note. * % refers to the percentage of participants related to the sub-population

2.4.2 Data collection and analysis

In order to achieve triangulation of findings (Yin, 2003), three methods of data collection were administered (Table 2.2): questionnaires, interviews, and curriculum documents (see Appendix A for the instruments). The development of all instruments was informed by the extended literature review. Content and face validity of the instruments were evaluated through expert appraisals (professors in a research institution) and through pretesting the instruments with a sample of respondents as was the case with the questionnaires. Reliability

coefficients (Cronbach's alpha (α) and Cohen's kappa) were calculated in the analysis of the questionnaires and documents.

Table 2.2 *An overview of the data collection methods per research question*

Research Question (RQ)	ECCC Interview	SM* Interview	MM** Interview	Teacher Questionnaire	Student/alumnus Questionnaire	Checklist
RQ 1	X	X	X	X	X	X
RQ 2		X	X	X		
RQ 3			X	X		

Note. * SM: senior management (i.e., the Dean, vice-Deans, and Heads of Division), ** MM: middle management (i.e., Heads of Department)

Student questionnaire

The student questionnaire was developed to measure the student perceptions of issues related to program/course design and teachers' competencies. Having the most exposure to the curriculum, only senior students and recent alumni were targeted by the questionnaire. The questionnaire was developed in a five-point Likert scale (1=Strongly Disagree 5=Strongly Agree) and contained one multiple-choice question about students' suggestions for curricular improvements. A factor analysis (Principal Components Varimax rotation) was forced in 3 factors, which resulted in one factor (10 items, $\alpha = .83$) explaining 23.4 % of the variance. A second factor analysis was run on this factor, resulting in two (sub-)factors (Table 2.3). The first sub-factor was about the teachers' course design and pedagogical content competency (7 items, $\alpha = .8$) explaining 41.25 % of the variance, and the other was about curriculum internal and external consistency (3 items, $\alpha = .7$) explaining 52.19 % of the variance.

Table 2.3 *Constructs within the student questionnaire*

Constructs (items)	Example items	α^*	% of variance	M	SD
Teachers' design and pedagogical content competency (7)	- Provision of adequate practice for students - Consistency of final exams with what was taught in courses	.8	41.25 %	2.78	.85
Internal and external consistency of courses (3)	- Consistency of the courses with the market needs - Interconnectedness of core courses	.7	52.19 %	3.08	.98

Note. * Cronbach's α

Teacher questionnaire

The teacher questionnaire was developed to measure the teachers' perceptions of certain CD practices. Besides having multiple-choice questions and a space for open comments, the questionnaire contained four scales each developed in a five-point Likert scale (1= Strongly Disagree 5= Strongly Agree). Scale (1) had, however, four predefined constructs regarding teacher perceptions of following a systematic approach in designing their courses (i.e., conducting analysis, design, development and formative evaluation), which all had good

reliabilities except the construct ‘*analysis*’ which had an unacceptable alpha of (.44) suggesting that respondents did not understand this construct well. The other scales (scale 2, 3, and 4) were factor-analyzed (Principal Components Varimax rotation). Table 2.4 shows the results. All emergent constructs of these three scales had good internal consistency (α ranging between .71 and .89), which is either respectable or very good (Devellis, 1991).

Table 2.4 *Constructs within the four scales of the teacher questionnaire, (n= 45)*

Scale 1: Teacher perceptions of their following a systematic approach in CD (18 items)					
Constructs (No. of items)	Example items *	α	% of variance	M	SD
Analysis (5)	- I consider the characteristics of students I'll teach - I consider how the course is related to the other courses	.44	NA**	4.18	.42
Design (4)	- I write down the general/specific goals of the course - I determine the course learning tasks/activities	.71	NA	4.22	.55
Development (5)	- I prepare the course readings - I write down a course description	.72	NA	4.17	.57
Formative evaluation (4)	- I check my course plan with the HoD or colleagues	.74	NA	3.65	.81
Scale 2: Teacher perceptions of their involvement in CD activities (7 items)					
Involvement in establishing a shared vision about CD (4)	- I am informed about how the core courses are interconnected - I participate in forming a shared vision about managing CD activities	.76	41.58 %	1.85	.48
Involvement in program/course modification (3)	- I am involved when changes are made to the core courses - I am involved when changes are made to the study program	.77	14.89 %	4.24	.44
Scale 3: Teacher perceptions of CD practices in their departments (17 items)					
Curriculum update activities (6)	- The dept. regularly updates the program/courses - The dept. discusses curriculum-related improvements during meetings	.89	51.56 %	2.62	.92
Objectivity in handling CD activities (4)	- CD activities in the dept. are informed by real data - The dept. evaluates the program/courses to improve the quality	.88	9.29 %	2.33	.99
Authority of departments over CD (4)	- The dept. determines the learning activities within a course - There is a shared vision in the department regarding the educational philosophy	.81	8.24 %	2.45	.81
Handling course descriptions probably (3)	- The dept. provides new teachers with detailed course descriptions - The course descriptions are clear	.80	6.72 %	3.03	.99
Scale 4: Teachers' beliefs and attitudes towards CD (9 items)					
Importance of working on CD activities (5)	- CD should be a continuous process - Working on CD should be part of a teacher's job	.80	39.24 %	4.6	.39
Willingness to participate in CD activities (4)	- I am willing to take part in a CD project - I like to participate in CD activities	.85	15.30 %	4.6	.48

Note. (*) Items have been shortened here, (**) NA= not applicable.

Interviews

The curriculum development official from the Executive Council of Community Colleges (ECCC), three administrators from the senior management (TM) at SCC, and nine Heads of Department (HoDs) at SCC were interviewed. The ECCC interview investigated issues such as the level of autonomy the SCC has in shaping its curricula and the CD support the SCC receives from the ECCC. The interviews with the TM and HoDs explored the actual CD practices, teachers' involvement in CD, support needed, and challenges. All interviews were semi-structured. For qualitative data, a number of tactics for generating meaning (Miles & Huberman, 1994) were used such as counting frequencies of occurrence, noting emerging patterns and themes, clustering, and building a logical chain of evidence.

Checklist

A checklist (Appendix A-6) was developed based on the ten components of the curriculum (Van den Akker, 2003) to analyze all course descriptions available ($n=183$) in the study departments. The ten components were defined, and then each component was counted in all course descriptions (see table 2.5). Another checklist (Appendix A-7) was developed to measure the clarity of the course learning objectives based on a random sample of 32 courses. Three pre-defined codes (performance-based, performance conditions, and performance standards) were used to assess the measurability and clarity of learning objectives (Smith & Ragan, 2004). The researcher along with a colleague conducted an intercoder reliability test (Neuendorf, 2002) to verify the existence/non-existence of the three pre-defined codes. First, a code book containing the codes along with their definitions and a code form were developed for the two coders to use. Second, training and code piloting were conducted with the second coder. Then, an intercoder reliability test was conducted and the result (Cohen's $Kappa = .71$) was found to be substantial according to Landis and Koch (1977).

2.5 Findings

2.5.1 How do the teachers and management approach curriculum design both as a blueprint and as a process?

Curriculum design as a blueprint

According to the curriculum department official at the Executive Council of Community Colleges (*macro*), there are no written accreditation standards, policies, or procedures that regulate CD activities at community colleges in the country including SCC, leaving great autonomy for SCC to develop and evaluate its curricula. At the college level (*meso*), both the senior and middle management unanimously report that there are no internal policies and procedures within the college departments that regulate CD activities such as reviewing the educational programs/ courses and ensuring their consistency with the needs of the labor market. A Head of Division notes:

We do not have agreed upon procedures or policies that regulate curriculum development activities at the college level. It is rather individual efforts and judgments by the Heads of Department and divisions. The norm is that teachers must follow the course description, and if they want to make changes or updates, they need to coordinate with the Head of Department.

At the program and course level, there are no program specifications documents that describe the study program vision, mission, and student learning outcomes. There is available, however, an outline for each educational program indicating the courses to be taught sorted by the academic semester along with the allocated credit hours. The three initial SCC educational programs (in applied computer sciences) were developed by foreign experts, but soon the course descriptions became outdated and eventually abandoned by teachers who developed new ones. Later, according to the vice-Dean and a Head of a Division, seven new educational programs were developed by visiting foreign teachers or professors from national universities who determined the outlines of these programs and developed course descriptions for some courses that were within their expertise, leaving some courses without descriptions. HoDs were then assigning these courses to teachers who could teach and write course descriptions for them. The frequent mobility and attrition of both the HoDs and teachers caused such course descriptions to go missing as reported by some HoDs.

The analysis of all available course descriptions in the college (n= 183) has revealed that only five out of the ten curriculum components (Van den Akker, 2003) appear on more than half of the college course descriptions as illustrated in Table 2.5. These components are: 1- content, 2- assessment, 3- objectives, 4- learning resources, and 5- time. The content of these five components indicates, however, a lack of detail and specificity. For example, the assessment component in all course descriptions tells only about the type of assessment (e.g., quiz, assignment, etc.) along with its total grade without explaining the assignment, its grade breakdown, or the grading criteria. All HoDs confirm that the current course descriptions are either lacking detail or need more clarification. An HoD states that *“course descriptions are not detailed enough. If the same course description is given to two teachers, they will teach it differently”*. In addition, the content analysis of a sample of 145 course objectives that appear on 25 % of the course descriptions (n= 32) indicates that course objectives are vaguely stated with few of them mentioning the students’ expected performance (10.5 %), its conditions (4.56 %), and its standards (0.9 %).

Table 2.5 Availability of the ten curriculum components in the college course descriptions, (n= 183)

Curriculum Component	Operationalization	Air-conditioning (N= 14)	Automotive Eng. (N= 10)	Computer Eng. (N= 26)	Fashion Design (N= 30)	Graphics (N= 13)	Interior Design (N= 25)	Medical Equipment (N= 7)	Programming & Internet (N= 30)	Project Management (N= 28)	Total (N= 183)
Rationale	Purpose of course/ relevance to other courses/ relevance to labor market needs	0	0	0	0	0	0	0	0	0	0
Objectives	Students' learning outcomes	10	0	18	29	10	0	6	29	26	128 (69.9 %)
Content	Topics/tasks to be taught	14	10	26	30	13	25	1	30	28	177 (96.7 %)
L. Activities	What are students going to do?	0	0	0	0	0	0	0	0	0	0
Teacher Role	Lecturer, facilitator, etc.	0	0	0	0	0	0	0	0	0	0
Materials/ Resources	References, textbooks, handouts, software, tools, etc.	9	0	17	21	7	0	1	30	23	108 (59 %)
Grouping	Pair, group, or individual activities	0	0	0	0	0	0	0	0	0	0
Location	Labs/classes/industries	0	0	0	0	0	0	0	0	0	0
Time	Roster/deadlines	11	0	7	29	9	0	0	20	28	104 (56.8 %)
Assessment	Assessment methods/grade breakdown/assignment descriptions	12	0	24	28	10	0	1	30	28	133 (72.6 %)

Curriculum design as a process

As noted earlier in the study context, CD activities (e.g., planning, evaluating, updating, etc.) are left to the study departments to handle. However, the majority of HoDs claim that they have little autonomy in shaping their curricula at the program level as they usually experience resistance from the senior management when they want to add or delete courses. Within this restriction, the common CD activity is individually updating or modifying courses when felt necessary by the course teacher at the beginning of each semester – usually after consulting the HoD, as unanimously reported by HoDs.

Interviews with the heads of divisions and HoDs indicate that the activity of redesigning courses does not follow a systematic process. What actually happens seems to be echoed in the following quotations from the management. A Head of a Division explains that *“What most teachers do is that they take a book and copy the table of contents and then organize the lectures based on the book topics”*. And an HoD points out that *“There is no systematic process being followed by the department to improve the current courses. It is a matter of the department judgment or the individual teacher judgment because there are no abiding rules to be followed”*.

From the teachers’ perspective, only a few teachers (17.8 %) believe that CD in their departments follows a systematic process. Nevertheless, teachers who (re)design their own courses to some degree (86.7 %) claim that they go through a systematic approach in designing their courses: analysis ($M= 4.18$, $SD= .42$), design ($M= 4.22$, $SD= .55$), development ($M= 4.17$, $SD= .57$), and formative evaluation ($M= 3.65$, $SD= .81$). Formative evaluation has, however, received a lower mean and higher standard deviations compared to the other core activities. This activity in the CD process (i.e., evaluation) is reported by the majority of teachers (63.6 %) to be a missing practice in the study departments. This finding is confirmed by the students who (90.2 %) report that they are not involved in evaluating courses by the end of the semester.

Three constructs in the teacher questionnaire capture certain characteristics of the CD process in the study departments. These are curriculum update activities ($M= 2.62$, $SD= .92$), objectivity in handling CD activities ($M= 2.33$, $SD= .99$), and the authority of the department over CD ($M= 2.45$, $SD= .81$). Although standard deviations indicate a fairly high variation, a Kruskal-Wallis test shows no statistically significant difference in teacher perceptions across the study departments about these CD practices ($df= 8$; $H= 12.36, 7.68, 6.28$ respectively; $p= .13, .46, .61$ respectively). The low means of these constructs indicate poor departmental coordination of curriculum update activities, lack of objectivity in handling CD activities, and great autonomy for the individual teacher in modifying the assigned courses.

The alignment of the college educational programs with the labor market needs and with the advances in the academic disciplines depends, according to most of the HoDs, on the attachment of some teachers to industry (i.e., a second job) and their teaching experience. The HoDs explain, however, that such alignment is not optimal due to a number of challenges as reported in the next section.

2.5.2 What are the main hindering and supporting factors affecting curriculum design practices?

Hindering factors

According to the official from the Executive Council of Community Colleges (ECCC), lack of government resources is a major factor preventing the ECCC from providing the necessary support to community colleges regarding CD issues. At the college level, the vice-Dean blames the ECCC and the ministry for the lack of resources and support the college receives from these higher government bodies. He also believes that a great challenge affecting CD practices at the college lies in the competency of the HoDs and the teachers who are not yet qualified enough to assume CD roles. They are mostly diploma or bachelor holders while senior teachers are still studying abroad to attain higher degrees. The student data confirm the senior management view on the teachers' competencies. A construct in the student questionnaire about the teachers' design and pedagogical content knowledge ($M = 2.8$, $SD = .87$) and the students' open comments all indicate the students' dissatisfaction about their teachers' competencies.

For the middle management (HoDs) and teachers, all of them report that lack of CD expertise and lack of senior management support (e.g., training, incentives, and time provision) are major challenges facing their departments in managing CD activities in a structured and systematic way. HoDs unanimously report that the CD support they receive from the senior management regarding CD is very little to none. One HoD explains that *"There are no projects or workshops that encourage the department to work on curriculum development activities . . . I cannot work on curriculum development on my own"*.

Despite the reported attachment of *some* teachers to industry and its potential impact on the programs' external consistency, the HoDs report a number of challenges in realizing optimal external consistency. One challenge lies in the competency of teachers as many of them are bachelor holders and/or adjuncts with inadequate subject matter knowledge and teaching experience. Another barrier concerns the shortage of equipment necessary to train the students on the vocational skills expected by industry. This is congruent with the student data which indicate their dissatisfaction about the inadequate provision of hands-on learning experiences during their study in the college. Other challenges include the poor coordination of students' industry internship and the lack of up-to-date references in the college library.

Supporting factors

Data analysis has, however, revealed a few CD-friendly factors that can support the study departments in managing their CD activities. Based on a scale developed to measure the teachers' beliefs and attitudes towards assuming CD roles, two constructs in the teacher questionnaire show positive attitude towards CD: importance of working on CD activities ($M = 4.6$, $SD = .39$) and willingness to participate in CD activities ($M = 4.6$, $SD = .48$). Another supporting factor is the great autonomy the college has in designing its curricula as pointed out earlier. Furthermore, due to economic challenges, some teachers have jobs in the labor market besides their teaching at the college, as reported by HoDs. Such attachment to the job

market can, when structured, contribute to making the college curricula more externally consistent.

2.5.3 What kind of organizational and professional development support do the study departments need to improve curriculum design practices?

The vice-Dean contends that teachers at SCC did not come originally from the womb of industries, thus they are quite knowledgeable about theory but less competent when it comes to integrating practical skills in the curricula. Therefore, they need, he argues, to be trained in industries so that they become more capable of training students on the needed skills. For HoDs, the majority of them (n= 5) report the need for training and for CD guidance (e.g., policies and guidelines) so as to approach the CD process and activities more systematically. An HoD states *"I, as the Head of Department, need professional development. I need some points that guide me on how to go about curriculum development"*. Moreover, the HoDs believe that their teachers need to improve in the area of curriculum design (n= 8), pedagogy (n= 5), exploration of new trends via industrial visits (n= 5), and subject matter (n= 3). For teachers, although many of them (72.7 %) believe they have adequate CD skills, almost all of them (97.7 %) report that they would like to improve their CD skills. The majority of them (86.7 %) actually contend that realizing curricular improvements can occur through being trained on CD skills.

Organizational conditions and support necessary for the study departments to structure and work systematically on CD activities have also been examined. HoDs believe that there should be monetary incentives for teachers to participate in CD activities (n= 8), provision of time (n= 7), provision of more autonomy to take major curricular decisions (n= 3), and provision of training (n= 2). For teachers, they have indicated similar conditions for their active participation in CD activities: the provision of professional support (91.1 %), encouragement from management, provision of autonomy, and approval of what they develop (84.4 %), provision of monetary incentives (75.6 %), working in teams with colleagues (71.1 %), and provision of time (49 %).

2.6 Conclusion and Discussion

The purpose of this study was to further explore and analyze CD practices at a community college in a developing context after problems have been identified in a previous study (Alzubairy, 2009). This study has investigated how the teachers and management approach CD both as a blueprint and as a process along with the CD challenges and needs this institution might have to ensure the quality and relevance of its educational programs. Following are the main conclusions.

(1)- The study findings clearly show that there is a major problem with the writing and documentation of the college formal curriculum (CD as a blueprint). There are no written policies or procedures that guide CD activities and ensure the consistency of the college curricula with the changing needs of the labor market. The study departments do not have program-specifications documents and clear course descriptions. Such practices violate a major principle in systematic curriculum design which is the identification of the student

learning outcomes that the institution should seek to attain and hinder curriculum improvement efforts (Diamond, 2008; Tyler, 1949). Such little attention to the written curriculum is a commonly reported issue (Habaneck, 2005; Stark, 2000).

(2)- The study findings also indicate several characteristics of the current CD process and practices. First, the CD process is mostly centered on modifying individual courses losing the global view of the whole curriculum. Congruent with Stark (2000), the common CD practice is course 'routine maintenance', which is limited to updating and modifying course content and materials. Making major revisions (e.g., setting new objectives and processes) and designing new courses are not, Stark explains, as common since these require much effort and passion on the part of teachers. Such focus on content seems to have jeopardized the adequate provision of vocational skills that the labor market has demanded (Alzubairy, 2009). Second, the study departments seem to be following an intuitive approach in designing their curricula rather than adopting systematic procedures that are informed by formative evaluation, which threatens the internal consistency of the college curricula (Kessels, 1999). Moreover, the CD process is highly individual with little collaboration between teachers and clear absence of involving industry representatives in shaping the college educational programs. Such an individual approach does not seem to be conducive to realizing optimal curriculum external consistency (Kessels, 1999).

(3)- While possibly found in more developed contexts, with varying degrees (as indicated in the above literature), the sub-standard CD practices and conditions reported in this study can be attributed to four major factors/challenges typically associated with developing contexts with economic difficulties.

- Inadequate financial support (Rogan & Grayson, 2003), which results in poor educational resources and very limited quality training opportunities for HoDs and teachers,
- Poor coordination of student internship and inadequate provision of practical training in the vocational institution, which result in students having theoretical knowledge about the discipline but little mastery of the target vocational skills (Akomaning et al., 2011; Lumby, 2000) as reported in this study,
- High rate of HoDs' and teachers' mobility and attrition in developing contexts due to their search for better job offers (Gervedink Nijhuis et al., 2012), thereby increasing the number of adjunct teachers who are usually less qualified and are not required to participate in CD activities (Diamond, 2008),
- Lack of CD expertise and management skills of the academic managers as most of them are promoted to such leading positions based on teaching seniority and oftentimes without attending pre- or in-service relevant training programs (Gervedink Nijhuis et al., 2012). This probably makes them play a reactive rather than a proactive role regarding curriculum development issues, which is not appreciated by the HoDs and teachers as found in this study.

2.7 Implications for Practice

Reflecting on the major findings of this study, a number of measures are proposed to improve the current CD practices at this community college. First, urgent attention needs to be paid to the writing of the college formal curriculum. With the involvement of industry representatives, the focus needs to be on clearly formulating the learning outcomes of both the college programs and courses and linking them together to achieve the programs' overall goals. Second, college curriculum policies need to be developed to ensure that the study departments apply systematic and collaborative procedures in implementing, evaluating, updating, and documenting their educational programs, thereby minimizing any potential individual and ad hoc CD practices. Such measures are quite likely to improve the internal and external consistency of the college curricula. Moreover, for the HoDs and teachers to approach the various CD activities professionally, there is a clear need for involving them in professional development programs that focus on standard CD practices. Besides such training, the senior management needs also to establish a positive work environment and provide incentives for HoDs and teachers (within the available means) to minimize the high attrition rate and encourage them to work more systematically on CD activities.

CHAPTER 3 - IMPROVING CURRICULUM DEVELOPMENT PRACTICES IN A TECHNICAL VOCATIONAL COMMUNITY COLLEGE: EXAMINING EFFECTS OF A PROFESSIONAL DEVELOPMENT ARRANGEMENT FOR MIDDLE MANAGERS ²

Learning about curriculum development is critical for the middle managers of technical vocational institutions in order to assume curriculum leadership in maintaining and enhancing the quality and relevance of their educational programs. This case study reports on the design and effects of the first round of a professional development arrangement intervention (PDA-1) for 13 middle managers of a technical vocational community college in a developing country. The findings indicate that the middle managers appreciated the relevance of the PDA-1 for curriculum development at the community college and gained substantial learning about systematic curriculum development. However, the middle managers' post-PDA-1 curriculum development improvement efforts were minimal and characterized by individual initiatives, due to a lack of senior management support, unfavorable work conditions, and a high rate of middle manager attrition. The conclusion drawn is that for *trained* middle managers to lead systematic curriculum development practices, contextual and organizational barriers germane to technical vocational education in developing contexts need to be considered.

3.1 Introduction

Developing countries are becoming increasingly aware of the role that Technical Vocational Education and Training (TVET) can play in reducing poverty and supporting economic growth. Governments of these countries believe that TVET will feed 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 et al., 2009). However, there are various implementation barriers that keep these aspirations from being realized. Challenges such as political instability, poor infrastructure for TVET institutions, huge numbers of students, and inadequate collaboration between TVET institutions and industry result in TVET curricula of low quality and relevance to the needs of stakeholders (Agrawal, 2012; Baqadir et al., 2011; Bakah et al., 2012a; Gervedink Nijhuis et al., 2012; Lai & Lo, 2008).

² This chapter is based on: Albashiry, N., Voogt, J. M., & Pieters, J. M. (2015). Improving curriculum development practices in a technical vocational community college: Examining effects of a professional development arrangement for middle managers. *The Curriculum Journal*. doi: 10.1080/09585176.2015.1040041

In light of this TVET landscape in developing countries, TVET institutions need to ensure systematic curriculum development practices, given the means available and the challenges encountered, such that TVET programs are consistent with the needs of the labor market (Boateng, 2012b). It is usually the academic managers at the middle level of these institutions (e.g., academic departments) who are expected to play a critical role in maintaining and enhancing the quality and relevance of TVET programs (Albashiry, Voogt, & Pieters, 2015; Boateng, 2012b; Mazani, 2013). In practice, however, pre- and in-service professional development opportunities for TVET program managers are reported to be scarce; as a consequence, Heads of Department (HoDs) in tertiary TVET institutions have been found to lack adequate competency in leading effective curriculum development practices, resulting in academic departments that do not have goals, and curricula that have not been reviewed for many years (Albashiry et al., 2015; Bakah et al., 2012a; Gervedink Nijhuis et al., 2012; Mazani, 2013).

The effectiveness of professional development programs on *curriculum development* that are designed for TVET college middle managers is an area awaiting further empirical research, especially within the context of developing countries. Therefore, the purpose of this study is to describe the perceptions of the middle managers of TVET community colleges in such a context about the relevance of such programs to their jobs as 'curriculum leaders'. The study also seeks to examine the effects of these programs on the middle managers' learning about curriculum development and on their post-training curriculum leadership practices.

3.2 Study Context

Yemen, the broad context of this study, shares the TVET scene described above. Despite the turbulent political instability in the last two decades coupled with economic hardships, government attention to TVET is evident. TVET in Yemen had been handled by an administrative body attached to the Ministry of Education, but in 2001 it was assigned an independent ministry. Community colleges were introduced in 2000 as a new form of post-secondary education, and have recently been attached to the Ministry of TVET to emphasize their technical and vocational orientation. These colleges offer three-year specialized degree programs with the 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 sector (Shumaker, 2013). The Ministry of TVET does not yet have accreditation standards for community colleges to abide by, nor do these colleges have active curriculum development units to provide guidance on program/course renewal, thus leaving academic departments to struggle with establishing, maintaining, and updating their academic programs.

Sanaá Community College (SCC), the specific context of this study, is a leading public TVET institution that has now ten diploma departments, with each one being managed by an HoD. Departments are grouped into divisions by academic discipline, and each division is chaired by a Head of Division (HoDiv) who is expected to coordinate the academic processes of the affiliated departments. Early academic programs were developed through a foreign project (a group of experts from USA Community Colleges) and the later ones by subject-matter

experts most of whom no longer work at SCC. The minimum academic degree required for teachers to work at community colleges is a four-year bachelor's degree in a discipline related to the department where they will teach, but they often have not received pre-service formal training on pedagogy or curriculum development.

A previous exploratory study (Chapter 2) identified several college-wide sub-standard curriculum development practices jeopardizing the college programs' external consistency (i.e., relevance of the programs to the concerned stakeholders' expectations) and internal consistency (i.e., harmony between elements such as needs analysis, learning goals, instructional strategies, and evaluation). Two major curriculum development practices stood out. First, there was a major problem with the departments' formal curricula (i.e., program specifications, course descriptions, and curriculum policies), as these curricular documents were missing or ill-defined. Second, curriculum development practices were found to be mostly individual, intuitive, and ad hoc. They also tended to be limited to individual courses, thereby failing to achieve interconnectedness of the whole academic program. Such practices were attributed, in part, to the inadequate expertise of the HoDs and HoDivs for assuming effective curriculum leadership.

3.3 Conceptual Framework

3.3.1 Curriculum development and curriculum leadership

Curriculum development, defined as "the process of planning, constructing, implementing and evaluating learning opportunities intended to produce desired changes in learners" (Print, 1993, p. 23), is essential for realizing a high quality and relevant curriculum (Diamond, 2008). While there are several approaches to curriculum development (Marsh & Willis, 1999; Visscher-Voerman et al., 1999), curriculum development at the program level is commonly conducted through a systematic approach (Gustafson & Branch, 2002). A key activity in this systematic approach is the development of the curriculum (program) learning outcomes, which then form the basis for subsequent development activities such as selecting the program content, learning strategies, and assessment methods (Visscher-Voerman et al., 1999). This approach is often conceptualized as involving an iterative cycle of five phases: analysis, design, development, implementation, and evaluation (Piskurich, 2006). However, simply applying this approach does not in itself yield optimal results according to Kessels (1999). Kessels explains that a relational approach that involves stakeholders in the curriculum development process is also needed to ensure the responsiveness of the curriculum to the needs of concerned stakeholders. This relational approach is centered on extensive collaboration and deliberations between the curriculum developers and the stakeholders throughout the development process in order to reach consensus about the main features of the educational program, such as its outcomes, content, pedagogy, and assessment (Kessels & Plomp, 1999).

Adopting a systematic and relational approach holds great potential for the development of the TVET curriculum, given its unique features. The TVET curriculum focuses on the provision of hands-on learning experiences for students, equips them with a broad array of

skills such as job search and entrepreneurial skills needed to succeed in the world of work, and requires constant updating to be responsive to the changing needs of the community and labor market (Agrawal, 2012; Boateng, 2012b; Finch & Crunkilton, 1999). The unique nature of the TVET curricula and the challenges TVET institutions encounter demand competent managers who can assume purposeful curriculum leadership (Boateng, 2012b; Bureau of the Conference of Ministers of Education of the African Union, 2007; The European Centre for the Development of Vocational Training, 2011).

A growing body of analytical and empirical research indicates that academic managers are increasingly expected to perform curriculum leadership tasks: defining and sharing the curriculum purpose (i.e., mission, goals, and standards), promoting external and internal collaboration with curriculum stakeholders, providing a structure for curriculum development work, and coordinating the various and complex curriculum development activities (Nguyen, 2012; Wiles, 2009). 'Curriculum leaders' focus on two main functions: maintaining the curriculum and advancing it to a better state (Wiles, 2009). The first involves conducting regular reviews, thereby ensuring compliance with accreditation standards and the availability of necessary resources, while the latter requires updating the academic programs/courses, setting new goals, and initiating innovations for better student learning.

Academic managers, as curriculum leaders, are expected to monitor the fulfilment of program/course plans by coordinating efforts throughout three major curriculum development phases (Lattuca & Stark, 2009). First, during the development phase, they ensure that the learning outcomes of the programs and courses are articulated and up-to-date. Second, during the implementation phase, they ensure the availability of staff and materials and facilitate other relevant processes such as communicating with teachers and students and motivating teachers. Finally, during the evaluation phase, they monitor student progress, assess the implementation of the intended plans, and adjust them accordingly.

Review of the literature addressing curriculum leadership (Glatthorn, Boschee, Whitehead, & Boschee, 2012; Marlow & Minehira, 1996; Sorenson, Goldsmith, Mendez, & Maxwell, 2011; Stark et al., 2002) reveals diverse and sometimes divergent views about roles, tasks, and activities (terms used inconsistently) associated with curriculum leadership. A synthesis of this literature suggests three overlapping curriculum leadership domains within which 'curriculum leaders' function. The three domains are as follows: 1- the curriculum development domain, concerning the technical curriculum development tasks and activities that academic managers need to work on with others; 2- the administrative domain, referring to the routine administrative tasks that keep the educational process running; and 3- the leadership domain, concerning leadership roles and practices expected of academic managers if they are to perform effectively in the other two domains. Of these three domains, the curriculum development domain is the one least attended to by college middle management for several reasons, one of which is the lack of professional support (Albashiry et al., 2015; Nguyen, 2012; Stark et al., 2002; Wolverson et al., 2005). The current study reports on the design and effects of the first round of a professional development arrangement (PDA-1) that focused on improving middle managers' learning about curriculum

development, so that they could better lead the curriculum development tasks associated with the curriculum development domain.

3.3.2 Professional development on curriculum development

For academic managers to practice effective curriculum leadership, learning about curriculum development is critical (Marlow & Minehira, 1996; Mazani, 2013). Professional development programs designed for academic managers should address essential understanding of curriculum development principles, concepts, and processes (Glatthorn et al., 2012; Print, 1993). Besides addressing these content aspects, four major design aspects need to be considered when designing professional development programs for academic managers (Aziz et al., 2005; Chiriboga, 2003; Darling-Hammond et al., 2009; Wilson & Xue, 2013; Wolverson et al., 2005).

First, the content and design aspects of these programs need to be contextually driven by the desired knowledge and skills to be developed by the academic managers rather than solely by the lists of tasks found in literature. The design also needs to attend to the organizational culture and structure. *Second*, the senior managers need to be involved in the design of the professional development program from the very beginning. They should be aware of or take part in determining the goals, content, and structure of these programs, as such involvement adds credibility to the program from the middle managers' perspective. *Third*, the program should extend over a period of time rather than taking the form of one-shot training, so that adequate time is provided for participants' discussions and reflections. *Fourth*, the program should not be confined only to knowledge delivery through formal workshops but should adopt multiple delivery strategies such as training sessions, coaching, hands-on activities, site visits, and the provision of handouts and exemplary materials.

3.3.3 Research questions

Kirkpatrick's model (D. Kirkpatrick & J. Kirkpatrick, 2006) suggests four levels for evaluating and understanding the effects of professional development programs: 1- reaction, 2- learning, 3- behavior, and 4- results. First, participants' reactions towards the professional development experience need to be captured, as negative reactions demotivate the participants and reduce the possibility of their learning. Second, the resultant learning, defined as "the extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the program" (p. 22), needs to be examined based on the pre-set goals of the program. Third, participants' behavior, i.e., new on-the-job practices resulting from the training, needs to be evaluated. The fourth level (results) refers to the ultimate outcomes for the sake of which the training program was initially developed, for instance, increased production, decreased costs, and reduced turnover.

Literature on the design and effects of professional development programs for TVET college middle management, with a focus on curriculum development, is currently limited (cf. Darling-Hammond et al., 2009). Thus, this study will address the overall question: "*What impact can a professional development arrangement have on improving curriculum leadership of college middle managers?*". Addressing the first three levels of Kirkpatrick's model (due to the

scope of the study), the study overall question is operationalized into the following three sub-questions:

- 1- Reaction: How do the middle managers perceive the relevance of the PDA-1 to their work?
- 2- Learning: What are the effects of the PDA-1 on the middle managers' learning about curriculum development?
- 3- Behavior: What are the effects of the PDA-1 on the middle managers' curriculum development practices?

3.4 Methods

Because this study aimed to provide an in-depth description and explanation of the impact of an intervention in its contemporary real-life setting, a case study approach (Yin, 2003) was used. The case was the PDA-1, the context was Sanaá Community College, and the units of analysis were the middle managers. 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), as demonstrated by our use of both quantitative and qualitative data analysis. Further, Borko (2004) explains that research addressing educators' professional development should first be conducted on a single professional development program at a single site, focusing on "the professional development program, teachers as learners, and the relationships between these two elements of the system" (p. 4).

3.4.1 Participants

Thirteen out of 16 middle managers, HoDs (10) and HoDivs (3), participated in this study on a voluntary basis. Only four out of the thirteen managers had previous training on some curriculum development aspects, such as lesson planning and formulation of learning goals. Table 3.1 shows other background information about the study participants. It can be observed from the table that the majority of the middle managers had a four-year bachelor degree and had served in their current positions for less than a year.

Table 3.1 *Participants' characteristics*

	Division/Department	Participant	Age	Gender	Degree	Months in position
1	Engineering Technology Division	HoDiv <i>a</i>	40	M	PhD	8
2	Applied Sciences Division	HoDiv <i>b</i>	32	M	PhD	5
3	Basic Sciences Division	HoDiv <i>c</i>	31	F	Master	8
4	Graphics and Multimedia Dept.	HoD <i>a</i>	40	M	Bachelor	12
5	Automotive Engineering Dept.	HoD <i>b</i>	29	M	Bachelor	24
6	Fashion Design Dept.	HoD <i>c</i>	26	F	Bachelor	6
7	Interior Décor Dept.	HoD <i>d</i>	40	M	PhD	7
8	Computer Programming Dept.	HoD <i>e</i>	36	M	Master	8
9	Computer Engineering Dept.	HoD <i>f</i>	30	M	Bachelor	12
10	Internet Technology Dept.	HoD <i>g</i>	29	F	Bachelor	24
11	Management Dept.	HoD <i>h</i>	30	M	Bachelor	12
12	Medical Equipment Dept.	HoD <i>i</i>	29	M	Bachelor	9
13	Air-conditioning Dept.	HoD <i>j</i>	35	M	Master	6
Average/Total			32.8 (SD = 4.8)	Male = 10 Female = 3	Bachelor = 7 Master = 3 PhD = 3	11.5 (SD= 8.8)

3.4.2 Intervention: Professional development arrangement

A professional development arrangement (PDA-1) was coordinated by the researcher (the project coordinator). Based on the findings of the previous exploratory study (Chapter 2), three broad goals were set for the PDA-1 and shared by the middle managers, the senior management, and the project coordinator (see Figure 1.2, Chapter 1). These goals indicated that the middle managers participating in the PDA-1 would be expected to: 1- acquire basic learning about curriculum development, 2- develop college-wide curriculum development policies, and afterward 3- improve the current curriculum development practices in their departments. The first goal was operationalized into five learning objectives, that is, learning about: (i)- systematic and relational curriculum development, (ii)- curriculum stakeholders and the importance of their involvement, (iii)- program/course description, (iv)- program/course evaluation, and (v)- curriculum policy development. The participants' learning was later evaluated by a knowledge test which was informed by these five learning objectives, Appendix B-2, (see the *Data collection and analysis* section).

For the second PDA-1 goal, the participants, with help from the project coordinator, collaboratively developed four curriculum policies to regulate program and course planning and evaluation activities such as The Program Annual Review Policy. Each policy comprised the policy goal, definitions, description, administrative procedures, people in charge, templates, and forms. For the third PDA-1 goal, the middle managers were expected to apply what they had learned and implement the policies developed such that they could improve the two major sub-standard curriculum development practices identified in the exploratory

study (the poor writing of the formal curriculum and the arbitrary program/course development practices).

Besides being context-driven, both the content and the design of the PDA-1 were informed by the conceptual framework of the study. The content of the PDA-1 addressed basic curriculum development concepts such as the broad definition of 'curriculum', curriculum components, curriculum stakeholders, and types of program learning outcomes. The PDA-1 content also addressed how educational programs and courses are developed and evaluated systematically and relationally, and how they are clearly and thoroughly described. In the PDA-1 design, the four design principles discussed in the conceptual framework were considered as follows.

Principle 1: Attending to managers' learning needs and contextual factors. The PDA-1 was developed based on the managers' expressed need for learning about systematic curriculum development. The PDA-1 also responded to the managers' need to have clear procedures to follow when planning or evaluating the programs and courses (i.e., policy development). Other contextual considerations included the provision of extrinsic motivation for the participating managers (e.g., monetary incentives and training certificates), and the scheduling of the training sessions at different time slots during the day to reduce potential conflicts with the participants' teaching schedules.

Principle 2: Senior management involvement. The Dean and his vice-Dean for academic affairs (both recently appointed) were invited to the orientation, opening, and closing workshops. The purpose was to give them an idea about the project, inform them about the findings of the exploratory study, and establish their ownership and commitment. They were also regularly briefed on the progress of the project.

Principle 3: Time span. The PDA-1 extended over an academic semester to allow for participants' reflections and collegial discussions over the topics introduced and to accommodate the several activities of the PDA-1: the orientation workshop, the opening workshop, the training sessions, the policy development, and the redesign of courses. Table 3.2 provides an overview of the chronological structure of the PDA-1, including the activities that were organized, the purposes of these activities, and the relevant design principles. The development of the intervention occurred in the gap between *month 1* and *month 3*.

Principle 4: Adoption of multiple delivery strategies. In conformity with this principle, four main strategies were adopted during the PDA-1: 1- the trainer's instruction (explanation of concepts), 2- the use of exemplary materials, hand-outs, and templates, 3- the use of practical tasks (i.e., the policy development and course redesign), and 4- the extended time span of the PDA-1 that allowed for participants' reflection and collaboration.

Table 3.2 *PDA-1 main activities, purposes, and relevant design principles*

Time/duration	Activity & Participants	Purpose	Design Principle
Month 1 (two-hour session)	Orientation workshop attended by the vice-Dean and some HoDs and HoDivs	Sharing the findings of the exploratory study and agreeing on the intervention (the PDA-1) and its overall goal	Principles 1 & 2
Month 3 (two-hour session)	Opening workshop attended by the Dean, vice-Dean, and most of the HoDs and HoDivs	Agreeing on the specific outcomes of the PDA-1 and an action plan	Principles 1 & 2
Months 3-4 (three weeks)	Training sessions for middle managers: five sessions spread over three weeks, each one lasting two hours. Sessions included discussions and learning activities.	Introducing basic concepts about systematic and relational curriculum development and the writing of the formal curriculum	Principles 1 & 4
Month 4 (three weeks)	Collaborative curriculum policy development by middle managers followed by two plenary workshops for refinement	Having college-wide policies that standardize the current arbitrary curriculum development practices	Principles 1 & 4
Month 5 (two weeks)	Course re-design: participants worked in groups on re-designing and re-describing some actual courses	Improving the participants' design skills	Principles 1 & 4
Month 5 (two-hour session)	Closing workshop attended by the Dean and all participants	Discussing the next step for the middle managers after the training and policy development	Principle 2

3.4.3 Data collection and analysis

Four data collection methods (questionnaires, interviews, curriculum documents, and field notes) were used to allow for triangulation of findings (see Appendix B for the instruments). Besides triangulation, sound procedures in cleaning up, analyzing, and interpreting the data were followed to improve the reliability of the study (Shenton, 2004). The development of instruments was informed by the conceptual framework and by the research questions. An overview is presented in Table 3.3. Reliability coefficients (Cohen's kappa and Cronbach's alpha) were also calculated after administering the questionnaires and coding the interviews.

Table 3.3 *Data collection methods per research question*

Research Question	Ques.* (1)	Ques. (2)	Pre- int.*	Post- int. (1)	Post- int. (2)	Curriculum Docs	Field Notes
1- How do the middle managers perceive the relevance of the PDA-1 to their work?	X			X	X		
2- What are the effects of the PDA-1 on the middle managers' learning about curriculum development ?	X	X	X	X	X	X	X
3- What are the effects of the PDA-1 on the middle managers' curriculum development practices?					X	X	X

Note. * Ques. = questionnaire; int. = interview

Questionnaires

Two questionnaires were administered to the 13 study participants. The first one was a reaction questionnaire adapted from Piskurich (2006). It intended to capture the participants' reactions to the PDA-1 design and content, and the participants completed it at the end of the closing workshop. Along with open-ended questions, this questionnaire included a five-point Likert-type scale (1 = *very poor* to 5 = *very good*; 9 items, $\alpha = .79$). Examples of scale items included the participants' perceptions of the quality of the learning materials provided during the PDA-1 (e.g., handouts, exemplary materials, and templates), the relevance of the training to the participants' job as middle managers, and the practical activities they participated in during the PDA-1. The second questionnaire (10-point rating scale, 1 = *the lowest* to 10 = *the highest*; 15 items, $\alpha = .95$) was developed to measure the participants' perceptions of their knowledge of curriculum development concepts and processes, assessed before and after the intervention. Examples of questionnaire items are as follows: 'I know how the program learning outcomes are developed/updated'; 'I know how to align the TVET program with the needs of the labor market'; and 'I know how to evaluate the TVET program'. The Wilcoxon signed-rank test (due to the small sample size) was used to find out whether the pre- and post-scores for knowledge differed significantly.

Interviews

Three semi-structured interview guides were developed and then conducted with the study participants at three successive time points. The first one, pre-intervention, was conducted before the PDA-1 started. It explored themes such as the participants' current curriculum development practices and their willingness to participate in a professional and curriculum development project. The second one, post-intervention (1), was administered during the first two weeks after the closing workshop. It aimed at identifying any change in the participants' beliefs and learning about curriculum development. Moreover, the interview examined the participants' reactions to and perceptions of the PDA-1 and its relevance to their job as middle managers. The third interview, post-intervention (2), was conducted with the HoDs, who were still in such a position ($N = 4$), an academic semester later to see how

much they had managed to improve the curriculum development practices in their departments, and to explore what challenges they encountered.

All interviews were audiotaped and segments related to the study research questions were transcribed. The general inductive approach (Thomas, 2006) was used as a framework for analyzing the qualitative data from the interviews. This approach is similar to Miles and Huberman's (1994) analytic framework of data reduction, data display, and conclusion drawing, except that it provides more specific procedures for analyzing, reporting, and linking data to the research goals. The interview data were cleaned, put into a common format, and then transferred to qualitative data analysis software (Atlas.ti7). Guided by the research goals, codes (themes) were identified and refined through several readings and interpretations. To ensure an acceptable level of consistency of interpretation of these major themes, Cohen's kappas were calculated (with the help of colleagues, functioning as second coders) on a random sample of representative quotations. Table 3.4 illustrates the results of the coding process.

Table 3.4 *Results of the coding process*

Research Goals	Data source	Number of Codes	Cohen's kappa	Example code	Example Quotation
Current curriculum development practices	Pre-intervention interview	10	.86	Content-centred course planning	'I was assigned a course with incomplete content. I had to search for content . . . So I developed the course choosing important content from websites of colleges offering the same course'
Post-intervention learning gains	- Post-intervention interview 1 - Questionnaire (1)	8	.82	Systematic planning	'I learned about the steps of analysis, design, evaluation and the procedures that need to be followed in developing our programs and courses'
Implementation challenges	Post-intervention interview (2)	3	.77	Inadequate senior management support	'The senior management was encouraging but verbally, without taking action'

Moreover, a number of strategies for generating meaning (Miles & Huberman, 1994) were used, such as counting occurrences, observing emergent themes, grouping, and building a logical chain of evidence.

Curriculum documents and field notes

Two types of documents were used for analysis: 1- the meeting minutes of the participants who worked on redesigning actual courses – to capture their design process, and 2- the old and new course descriptions for the redesigned courses – to see the level of clarity and detail of these course descriptions. Field notes were also taken throughout the project. The analysis of the meeting minutes and the field notes was informed by Miles and Huberman's (1994)

analytical framework of generating meaning as explained above, and the course descriptions were analyzed using a checklist based on the ten components of curriculum (Van den Akker, 2003).

3.5 Findings

3.5.1 How do the middle managers perceive the relevance of the PDA-1 to their work?

At the reaction level of Kirkpatrick's model, the data mainly from the reaction questionnaire and post-intervention interview (1) showed that all middle managers found the various PDA-1 topics and activities relevant to and supportive of their curriculum work. Regarding the PDA-1 content, the participants highly valued the topics the PDA-1 addressed and explained that their conceptual knowledge about such topics would help them do better work in leading or participating in curriculum development committees. The participants also noted the importance of the curriculum policy development part of the PDA-1. HoDiv *a* explained that the policies developed during the project, such as the Course Evaluation Policy, would now be the reference point guiding their curriculum work as middle managers. The following quotations from post-intervention interview (1) captured the participants' reactions.

HoDiv c: The project [the PDA-1] is 100% related to my work. My work as a teacher and as Head of Division who deals with students, teachers, and HoDs requires that I know how to develop, assess, and evaluate the curriculum, what to focus on, what weaknesses to work on.

HoD g: Now I feel that I am able to develop a curriculum for certain courses or participate in a curriculum development committee. I feel very confident, but I greatly lacked this confidence before, because you did not know what to do and on what basis you would go on.

HoD a: The ideas introduced during the training sessions were very useful to my work . . . It's important that the HoD has clear policies regarding issues such as hiring teachers and changing a course. The HoD can avoid lots of trouble when using such policies.

The descriptive statistics for the reaction questionnaire (Table 3.5) and the qualitative data analysis also captured the participants' positive reaction to the four delivery strategies employed in the PDA-1 (i.e., principle 4). The use of exemplary materials and templates was highly valued by the participants. They pointed out that such resources and tools helped them better understand the concepts introduced during the PDA-1, guided them in the course re-design undertaking, and would help them in their future curriculum work. The practical tasks (i.e., development of curriculum development policies and re-design of courses) were also appreciated by the participants. These hands-on activities were useful, according to HoDiv *b*, as they enhanced his understanding of the concepts introduced during the training. An emerging theme from the participants' comments concerned appreciation of the opportunities to collaborate with their colleagues. HoDiv *c* stated, *"What inspired me personally was the collaboration and active participation of the participants which made me feel that there is still a collaborative environment in the college through which we can work to achieve the goals of the training"*.

Table 3.5 *Participants' reaction to PDA-1 delivery strategies (N = 13)*

Delivery strategy	Frequency			Central tendency		
	Fair	Good	Very good	Median	Mode	Mean(SD)
Exemplary materials and templates	-	4	9	5	5	4.69(.48)
Trainer's instruction	-	4	9	5	5	4.69(.48)
Practical tasks	2	7	4	4	4	4.15(.68)
Logistics (timing and spacing)	3	3	7	5	5	4.13(.85)

Although most of the participants were satisfied with the PDA-1 logistics (timing and spacing), about half of the managers reported conflicts between their teaching schedules and the PDA-1 activities. This led some of them to skip their classes at times to attend the training sessions and work on the practical curriculum development tasks. HoD *f* suggested the offering of time release by the senior management, so that participants could better focus on the project activities without interruptions.

3.5.2 What are the effects of the PDA-1 on the middle managers' learning about curriculum development?

Based on defining learning as "the extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the [training] program" (D. Kirkpatrick & J. Kirkpatrick, 2006, p. 22), the PDA-1 endeavored to attend to these aspects in supporting the middle managers' learning about curriculum development.

The middle managers' beliefs about curriculum development either changed or were reinforced as a result of participating in the PDA-1. A major reported change concerned the managers' perceptions of the concept of 'curriculum'. Eight out of ten participants who addressed this topic during the post-intervention interviews, explained that the 'curriculum' was limited to the individual courses they were supposed to teach, and that curriculum development was synonymous with finding a recent book or a handout to cover during a semester. However, after the intervention they realized that the 'curriculum' has a broader meaning that includes the program/course learning outcomes, content, instructional strategies, assessment and other aspects that need to be considered altogether, as pointed out by HoD *c*. Another change in beliefs pertained to the complexity of the curriculum development process. Five out of seven participants who commented on this topic had considered curriculum development an easy process that involved searching for relevant and updated content. However, after the intervention they believed it was quite complex requiring several people, much time, and rigorous effort. The following quotations from the post-intervention interview (1) illustrate these belief changes:

HoD *h*: The curriculum for me was a list of topics given to the teacher to teach . . . and dividing these topics over a period of time. But now the curriculum is about having objectives, content, instructional strategies . . . and linking the course goals to the program goals. The concept of curriculum has become broader.

HoD b: Before the workshops, the word ‘curriculum’ was just limited to the book, but after the training we knew that it is the plan to achieve specific goals for specific students within the learning outcomes that the curriculum has specified.

On the other hand, beliefs that the middle managers reported were reinforced pertained to approaching the curriculum development process systematically and collaboratively. For example, HoD *j* explained that:

For me, the concept of curriculum was a plan that you follow, a plan containing objectives and many other things, as we learned during the workshops, and you see in the end if you have achieved them. This concept has now been enhanced in addition to the importance of standardizing these aspects.

Regarding the participants’ knowledge gained about curriculum development, the various data sources provided evidence of the participants’ substantial gains in knowledge about curriculum development. A Wilcoxon signed-ranks test indicated that the participants’ perceptions of their knowledge about curriculum development significantly improved after the intervention ($Mdn = 9.13$) compared to their pre-intervention knowledge ($Mdn = 6.6$), $Z = -3.11$, $p = .002$, and Cohen’s $d = 2.65$.

Analysis of qualitative data (from the various sources pertaining to this research question, see Table 3.3) revealed several themes that can be grouped into four main categories. First, the participants reported having learned about general concepts and principles of curriculum development, including the two major issues that the PDA-1 focused on (i.e., how to develop the department curriculum systematically and relationally, and how to describe it clearly and thoroughly). The concept most frequently mentioned in relation to new learning was the broad meaning the term ‘curriculum’ could take (as previously discussed). The second major learning theme concerned how to approach curriculum development systematically. Within this major theme, the participants reported having learned about core issues related to a systematic curriculum development process, for example, the five generic curriculum development phases of analysis, design, development, implementation, and evaluation, the involvement of curriculum stakeholders, and the development of program and course learning outcomes. HoD *e* explained, “*I believed that curriculum development had to be systematic but did not know how to do it; this belief has been enhanced and I know how to do it now*”. In the words of HoD *b*:

[The PDA-1 was] very useful for me, for example, in evaluating the course. Is the course related and supportive for the program? Is the program itself relevant to the labor market? I learned to focus on the learning outcomes of the students when they graduate – do these outcomes exist? Are they adequate for the labor market? I also learned how to evaluate the teacher, the course, the program in general.

The third learning theme pertained to collaborative curriculum development. Although some managers initially believed in collaboration, they did not know how to go about it. The participants reported not only their learning about the importance of teacher collaboration in developing the department curriculum, but also the importance of extending collaboration to include the college senior management, experts, and the potential employers of the college

graduates. HoDiv *a* stated, “Another aspect we learned was how to work collaboratively. I believed that curriculum development was collaborative but I did not know how to go about it and what the standards were”. HoD *e* said, “I prefer now that the department teachers develop the academic course collaboratively because if left to an individual, this person might stop teaching this course, which can cause problems”.

Fourth, the participants reported having learned about how important the development of college-wide curriculum policies was in order to regulate curriculum work in the departments. As HoD *g* pointed out:

The training helped me through giving me guiding ideas for managing the curriculum development activities. As a Head of Department I will do things, but on what basis? The training showed me how to confidently follow systematic procedures according to certain policies so that no one can criticize me!

Besides the above self-reported knowledge acquisition, the collaborative re-designing of actual courses provided an indicator of the middle managers’ improved curriculum development skills. Prior to the intervention, the participants indicated, in the pre-intervention interview, that curriculum development centered around finding relevant and recent course content from books, manuals, and websites. After the training sessions and the policy development activity, the participating managers worked collaboratively in four teams (based on the academic division to which they belonged) to redesign an actual course. Analysis of the meeting minutes and the new course descriptions revealed three common curriculum development practices applied by the teams, which had been previously missing. First, three out of the four teams paid special attention to the analysis phase. These teams started by assessing the current course through surveying the course teachers and students, via questionnaires and interviews, to get their feedback about what needed to be improved. The following text from the meeting minutes of team (a) captures this practice:

Team a: First, we started with the analysis process to facilitate the development phase and reduce the risks of taking wrong decisions through feeding it with real and objective data . . . it was necessary to get the students’ and teachers’ opinions about the course through discussion sessions based on pre-developed discussion points that were agreed upon by the team.

The fourth team, however, did not see the need for going through an analysis phase as they perceived their course to be fine, and that all it needed was elaboration of its description, focusing on the formulation of its learning outcomes. The second common practice was formulating the course learning outcomes and the specific performance elements for each outcome. The participants reported having ensured that the course learning outcomes and the performance elements were written in a measurable form, and that they were connected to the other elements of the course design. The following excerpt from the meeting minutes of team (b) illustrates this theme.

Team b: We started with formulating the course overall goal, the learning outcomes, and the specific performance elements in clear and specific terms. The team members did this in the discussion sessions and based on what we learned about course development . . .

The third improved practice demonstrated by the teams was the clarity and detail with which the new course descriptions were written. Analysis of the new course descriptions compared to their old versions showed better attention to various curriculum components in course design (Van den Akker, 2003), as illustrated in Table 3.6. Old course descriptions were mostly lists of topics to be covered. There was also clear improvement in the clarity and detail of these components in the new course descriptions, compared to the old ones. For example, the ‘content’ component in the old course descriptions was a list of topics sorted by week while in the new descriptions it has improved into a roster showing the content, learning activities, type of session, and a relevant assignment for each weekly session.

Table 3.6 *Presence of the ten components in the new vs. old course descriptions, (n = 4)*

Course component		Course 1		Course 2		Course 3		Course 4	
		OD*	ND*	OD	ND	OD	ND	OD	ND
1	Rationale		X*						X
2	Learning goals/objectives	X	X	X	X	X	X		X
3	Content	X	X	X	X	X	X	X	X
4	Learning activities		X		X		X		X
5	Assessment	X	X	X	X		X	X	X
6	Learning resources	X		X	X	X	X		X
7	Teacher role		X		X		X		X
8	Grouping		X		X		X		X
9	Time	X	X	X	X	X	X		X
10	Place								
Counts		5	8	5	8	4	8	2	9

Note. * X = component is present regardless of how clear and detailed it is; OD = old description; ND = new description

3.5.3 What are the effects of the PDA-1 on the middle managers’ curriculum development practices?

To address the behavior level of Kirkpatrick’s model, data were collected an academic semester later through post-intervention interview (2) to explore the participating HoDs’ initial efforts to improve their departments’ curriculum development practices, especially regarding the (re)writing of the formal curriculum and the application of systematic curriculum development procedures as explained in the developed curriculum policies. Four out of the ten participating HoDs were still in the position of HoD (i.e., HoDs *a*, *b*, *c*, and *d*), while some of the others had resigned because of the administrative work pressure and lack of support from the senior management for such a position. Still others quit to further their education through enrolling in graduate programs. Two out of the four remaining HoDs (HoD *a* and HoD *b*) took the initiative and started working on their departments’ formal curriculum at the course level but could not start applying the curriculum development policies due to implementation challenges. Both HoDs reported having re-described their program core courses (40% and 50%, respectively) through assigning a number of courses to some department teachers who worked on this task individually. However, these HoDs were not satisfied with the quality of the new course descriptions, as some teachers did not

use the developed uniform template and some lacked the skill to describe their courses professionally. HoD *a* explained that the new course descriptions had many weaknesses because teachers lacked experience in phrasing the learning outcomes using measurable verbs.

All four remaining HoDs were asked about the challenges they encountered in leading their departments' curriculum development work to a better state, based on the concepts learned during the PDA-1. Analysis of their responses revealed three major implementation challenges. First, all HoDs expressed the need for concrete support from the senior management. The role of the senior management was reported to be neutral and limited to verbal encouragement. The HoDs clearly stated that they needed incentives for teachers to participate in program/course re-design and financial support so that they could invite experts and organize curriculum development workshops. The following quotations demonstrate the kinds of support the HoDs expected from the senior management:

HoD *b*: The Dean, for example, called for me twice after the project [the PDA-1] was over to check what I am doing, I told him about what we had done in the department, and that we needed to hold curriculum development workshops led by a senior teacher and that such things require resources. He welcomed the idea and thanked me for what I did, and promised to coordinate such workshops but he did not do anything about it.

HoD *d*: We could not apply any of the policies developed during the project . . . for example, I couldn't evaluate the courses by the end of the semester. I need a team to work with me; I need a secretary, people to analyze the data to get the results so that I can improve things.

The second challenge concerned the college's organizational and administrative structures. HoDs pointed out that the current administrative structures did not support them in assuming effective curriculum leadership. Examples of administrative barriers included teachers' lack of obligation to be at the college at times other than their teaching times, which made it difficult for HoDs to ask them to come for a meeting to work on curriculum development. Moreover, the college, according to HoD *a*, lacked curriculum development operational strategies whereby processes, procedures, and responsibilities were outlined. Such a work environment seemed to have crippled the HoDs' initial efforts and kept them distracted from leading program/course improvements. The following quotations illustrate this second challenge:

HoD *b*: We could not do that [applying the curriculum policies] because of time; we were busy with the re-describing of courses. First, there was no time. Second, we had problems in the department to solve. There were three courses without teachers to teach.

HoD *d*: You see that the college does not have a strategy, regulations, or procedures to follow. If resources, staff, policies, and such things are lacking, how can you produce things. If I want to get beans I need to cook beans not eggs! You need inputs to get outputs. We work, here, like doing risk or disaster management.

The third major challenge pertains to teacher-related issues. The HoDs explained that most teachers were too busy to attend curriculum development meetings, as they had other jobs

outside the college or felt demotivated to participate in such undertakings due to the lack of incentives and appreciation from the senior management. Another teacher-related issue concerns the competency of teachers to work on curriculum development, especially the adjunct teachers. The following are some excerpts of what the HoDs had to say:

HoD a: Some teachers have issues with the management, and some teachers do not even come to the college except on their teaching days - both the employed and adjuncts. They do not have to come at other times, which makes meeting them impossible.

HoD b: For me, I think I did [apply systematic procedures in updating/re-describing courses]. But for the other teachers, unfortunately not. Teachers [who collaborated] are new and have not been trained on working systematically.

3.6 Discussion and Conclusion

This study explored the design, relevance, and effects of a PDA for a college middle managers that aimed to improve their learning about curriculum development so that they could exercise more effective curriculum leadership in their departments. This single case study did not aim for statistical generalization but rather endeavored to contribute to the theoretical understanding of how a specific PDA in a specific context for a specific group of people played out in practice (Borko, 2004; Yin, 2003).

With regard to the study main question (*What impact can a professional development arrangement have on improving curriculum leadership of college middle managers?*), the findings clearly indicate that the PDA-1 had a substantial impact on the middle managers at the first two levels of Kirkpatrick's model. At the reaction level, there was high appreciation of the PDA-1 and its relevance to the middle managers' work in the curriculum development domain. At the learning level, there was also substantial learning about systematic and relational curriculum development. The findings indicated that the middle managers had increased confidence about leading systematic curriculum development practices in their departments. Not only did the PDA-1 have a positive impact on their learning, but it also changed their beliefs about the concepts of 'curriculum' and 'curriculum development', shifting them towards a broader perspective compared with their previous notions which confined such a process to the updating of the syllabi of individual courses by individual teachers (cf. Darling-Hammond et al., 2009; Wolverson et al., 2005). The reported substantial learning by the middle management can be attributed to the participants' motivation to learn about this skill that they lacked and to the design of the PDA-1 which was informed by the conceptual framework and the results of the exploratory study.

However, at the behavior level, the learning of the remaining middle managers had a minimal transfer to practice due to unsupportive work conditions. The HoDs' inability to function in the curriculum development domain seems to be a consequence of the unstable and confused work environment in which they were operating (D. Kirkpatrick & J. Kirkpatrick, 2006), which also caused a high rate of HoD attrition. Ottevanger et al. (2010) reported similar findings in a project conducted in the context of a developing country. They conclude that implementation challenges of curriculum development projects after staff

training, especially the lack of organizational support and the management ownership, can greatly hinder the achievement of sustainable outcomes.

This study does have some limitations. The follow-up data came from only four participants due to the high turnover in such academic positions. Further insights could have been gained by interviewing those who left their position as HoD. Greater depth of analysis might have also been obtained by conducting interviews with the senior managers at this college, to get their take on the reported implementation barriers. Despite these limitations, a number of implications derived from this study can be informative for projects addressing a similar problem in a similar context. These implications are discussed next.

3.7 Implications and Reflections

For professional development programs that focus on improving the middle managers' learning about curriculum development to be effective and have sustainable outcomes, major contextual considerations need to be taken into account when designing and implementing these programs. Based on the study findings and literature from similar contexts, the four design principles (discussed in the conceptual framework) are revisited with the following reflections and recommendations.

Principle 1: Attending to managers' learning needs and contextual factors. An important contextual consideration is the provision of incentives, especially workload decrease and monetary incentives, for the middle managers to participate in such programs and in their follow-up activities. Another important issue is the fast rate of HoDs' turnover, which greatly affects the stability needed for curriculum development projects. HoDs' constant mobility is a common phenomenon in developing contexts, due to the low pay scale and the lack of competitive incentive packages in public TVET institutions; this causes loss of expertise and low morale in academic departments (Gervedink Nijhuis et al., 2012; Mellahi, 2000; Smit, Tegegne, & Van Vliet, 2010). Developers and stakeholders of these programs need to address the causes of this phenomenon and ensure an encouraging and stable work environment for middle managers. Moreover, non-training solutions should probably be considered along with the training component. These can include the development of internal curriculum policies in a way that addresses the unique context of the TVET institution.

Principle 2: Senior management involvement. Inviting senior managers to the opening and closing workshops and briefing them on progress, as was the case in this study, seem to be inadequate for establishing their ownership and commitment. To improve senior management's ownership and support during implementation, two activities are recommended. First, setting up of a follow-up implementation plan by both the middle and senior management should be an integral part of the design of such programs, as this can greatly bridge the expectations gap between these two management levels. Second, like the middle managers, senior managers who lack curriculum development expertise should attend a brief version of the program, so that they develop greater understanding of the organizational and emotional support the middle managers need to lead the various

curriculum development tasks associated with the curriculum development domain. Having senior management attend the same training programs before they are offered to lower level managers helps create a positive work climate and improve post-training practices (D. Kirkpatrick & J. Kirkpatrick, 2006).

Principle 3: Time span. As these programs and the follow-up activities demand extended time, senior management should provide middle managers with time release, both to attend the training sessions and later on to work on curriculum development tasks. Lack of time due to being busy with teaching and being involved in other work outside the TVET institution is a major barrier that prevents middle managers, in developing contexts, from participating in professional development programs and/or exercising effective curriculum leadership in practice (Albashiry et al., 2015; Ottevanger et al., 2010).

Principle 4: Adoption of multiple delivery strategies. The use of multiple learning strategies during professional development programs, for instance, training sessions, exemplary materials, and practical tasks can help participants gain basic knowledge about program/course (re)development. However, for middle managers to develop deeper understanding of systematic and relational curriculum development, they need to work with their department teachers on restructuring their programs with tailored professional support such as coaching and consultation.

Future research should probably address how such professional development programs can be integrated into curriculum development projects with the direct supervision and support of senior management. More emphasis needs to be placed on how post-PDA curriculum development practices in TVET institutions can be sustainable in developing countries.

CHAPTER 4 - CURRICULUM LEADERSHIP IN ACTION: A TALE OF FOUR COMMUNITY COLLEGE HEADS OF DEPARTMENT LEADING A CURRICULUM DEVELOPMENT PROJECT ³

College academic departments are central units where the curriculum (i.e., plans for student learning) is engineered. Heads of department (HoDs), like other academic managers, are increasingly expected to perform more curriculum leadership tasks, maintaining and enhancing the curriculum quality and relevance, especially in a Technical Vocational Education and Training (TVET) context. However, in practice, HoDs are reported to pay little attention to this aspect of their job due to several factors, one of which is a lack of professional support to play this role. This case study investigated how four HoDs of a community college perceived and enacted curriculum leadership during a curriculum development project after participating in two rounds of a professional development arrangement (PDA-1 & PDA-2). The findings showed that the HoDs valued the relevance and usefulness of the professional support received, which made them realize the significance of their role as curriculum leaders. The findings also indicate that the ways the HoDs enacted the curriculum leadership tasks and the challenges they encountered varied based on several factors. The conclusion drawn is that the support HoDs need and the challenges they encounter in assuming active curriculum leadership suggest their need for three professional competencies and the need for supportive organizational structures.

4.1 Introduction

College academic departments are central units where the curriculum (i.e., plans for student learning) is commonly engineered, implemented, and reviewed (Hecht, 2004; Nguyen, 2012). Heads of Department (HoDs) play a critical role in leading the department curriculum work, planning courses, maximizing the learning experiences of students, and attending to external and internal curricular influences (Lattuca & Stark, 2009). Like other academic managers, HoDs are increasingly expected to perform more curriculum leadership tasks: setting and sharing curricular goals, establishing structures for curriculum work, building curriculum development teams, and aligning curriculum development activities with the department/college mission (Nguyen, 2012; Stark, 2002; Wiles, 2009).

³ This chapter is based on: Albashiry, N., Voogt, J. M., & Pieters, J. M. (2015). Curriculum leadership in action: A tale of four community college Heads of Department leading a curriculum development project. *Community College Journal of Research and Practice*. doi: 10.1080/10668926.2015.1065775

Despite these expectations, HoDs are reported to spend little time leading their departments' program/course development activities compared to other managerial tasks due to a lack of pre- and in-service professional preparation for a curriculum leadership role and inadequate support and encouragement for HoDs to play such a role, especially in developing countries with limited resources (Nguyen, 2012; Stark et al., 2002; Wolverson et al., 2005). HoDs in such contexts lack adequate curriculum design competency to conduct systematic program renewals due to scarce in-service professional development opportunities, resulting in academic departments without goals and curricula that have not been reviewed for many years (Albashiry et al., 2015; Bakah et al., 2012a; Gervedink Nijhuis et al., 2012).

Conceptualizing curriculum leadership into four major tasks, the purpose of this study is to first investigate how HoDs of a community college perceived and enacted curriculum leadership during a curriculum development project, and second describe their reactions to the support provided and the challenges encountered during the purposeful enactment of the curriculum leadership tasks. The study also aims at contributing to the scarce empirical literature on curriculum leadership in a tertiary context – a neglected aspect of academic leadership.

4.2 Conceptual Framework

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 contends that curriculum leaders need to focus on two main curriculum development functions: maintaining the curriculum and advancing it to a better state. The first involves conducting regular reviews, ensuring compliance with accreditation standards, and ensuring the availability of resources, while the latter requires updating the academic programs, setting new goals or visions, and initiating innovations for better student learning. To attend to these two functions, curriculum leaders, according to Wiles, need to address four basic curriculum leadership tasks. These tasks are reviewed in light of academic leadership literature that echoes these four basic tasks for academic administrators.

First, curriculum leaders need to ensure that the curriculum purpose (e.g., accreditation standards, department mission, and program goals) is well-defined, shared, reviewed, and understood by the stakeholders, namely the teachers, (Lattuca & Stark, 2009; Wiles, 2009). Establishing and communicating a clear sense of direction for the academic department are two out of thirteen practices of HoDs identified by Bryman (2007) to be associated with departmental effectiveness. Second, curriculum leaders need to provide support and a structure for curriculum work. They need to sort priorities, explain procedures, and function as a helper and a guide rather than act authoritatively (Wiles, 2009). An integral part of this curriculum leadership task is encouraging and motivating the department's teachers to work on curriculum development as teachers feel that this work is time-consuming and lacking incentives (Lattuca & Stark, 2009). They also need to take the initiative in obtaining the resources that support curriculum development and provide the necessary training for teachers to enact the curriculum (Marlow & Minehira, 1996). Adjusting the teachers'

workloads and facilitating the implementation of the curricular goals are reported to be effective HoDs' practices (Bryman, 2007).

Third, curriculum leaders need to promote external and internal collaboration with curriculum stakeholders (e.g., potential employers of graduates and accreditation bodies) through opening channels for communication and ensuring that those involved in curriculum development, especially teachers, understand what is being discussed and planned (Wiles, 2009). Curriculum leaders should not only encourage teachers to work in teams on designated curriculum development tasks, but also ensure a positive climate for collaboration through, for example, providing a framework for collaboration, managing time issues, resolving conflicts, making decisions collaboratively, and creating a collegial work environment (Bryman, 2007; Stark, 2002; Wiles, 2009).

Fourth, coordinating the various and complex curriculum development activities is an important curriculum leadership task as there are many variables affecting the curriculum work such as people, space, time, and products (Wiles, 2009). Curriculum leaders need to understand the culture and context of the educational institution so that they can attend to the influences of, for instance, the community, the teachers, and the institution management (Marlow & Minehira, 1996). They also need to be highly organized, plan work in stages, use visuals to show the overall plan, assign curriculum development tasks, and constantly coordinate and link the various curriculum development undertakings to the predefined goals and outcomes (Wiles, 2009).

Do HoDs attend to these curriculum leadership tasks in practice? Current literature indicates that HoDs do not pay adequate attention to applying the above curriculum leadership tasks due to various challenges. These include the lack of extrinsic rewards and support from senior management (Lattuca & Stark, 2009), the tight administrative schedules (Aziz et al., 2005; Hurlimann, March, & Robins, 2013), frustration stemming from teachers' varying views of curriculum development (Lattuca & Stark, 2009), and the inadequate professional preparation on the role of curriculum leader (Lingam, 2011; Stark, 2002). However, it is not clear yet from current literature how HoDs perceive and enact curriculum leadership when they receive relevant curriculum leadership training and support. Therefore, the overall question that the study addresses is: *"How do middle managers perceive and enact curriculum leadership tasks within curriculum development projects?"*. The following sub-questions are formulated to answer the overall question:

- 1- How did the HoDs perceive their role as curriculum leaders after receiving relevant training and assistance?
- 2- How did the HoDs enact the four basic curriculum leadership tasks during the curriculum development project?
- 3- What was the support needed and the challenges encountered by the HoDs during the curriculum development project?

4.3 Methods

This sub-study is a part of an educational design research project. Educational design research (also known as design-based research and development research) is a research genre that is interventionist and has a dual purpose of solving an educational problem and contributing to scientific knowledge (McKenney & Reeves, 2012; Van den Akker, 1999). This sub-study reports on the second round of a professional development arrangement (PDA-2) for a community college HoDs. The PDA-2 was informed by the findings from the previous sub-study (PDA-1, see Chapter 3) along with insights from literature. It turned out that HoDs still needed further training; one that would help them perform curriculum leadership tasks: setting and sharing curricular goals, establishing structures for curriculum work, building curriculum development teams, and coordinating the various curriculum development activities.

4.3.1 Case and participants

The specific methodological approach used in this study was an embedded multiple-case design (Yin, 2003). Attention is given to the context (i.e., the college), the cases (the four curriculum development projects), and the units of analysis (i.e., the participating HoDs). Four out of the ten HoDs who participated in the PDA-1 took part in this study on a voluntary basis. Table 4.1 shows background information about the four participating HoDs. Each HoD formed a team of two teachers, based on the teachers’ willingness to participate in the curriculum development project which was an integral part of the PDA-2 (see Figure 1.3 in Chapter 1).

Table 4.1 *Characteristics of participating HoDs*

HoD	Age	Department (CD* Project)	Academic Degree	Years in position	Years of teaching
HoD a	42	Department of Graphics Design and Multimedia	Bachelor	2	9
HoD b	28	Department of Automotive Engineering	Bachelor	3	6
HoD c	26	Department of Fashion Design	Bachelor	1.5	4
HoD d	41	Department of Interior Design	PhD	1.5	2

Note. * CD= curriculum development

4.3.2 Study context

Sanaá community college (SCC), located in the capital city of Yemen, is a leading post-secondary technical and vocational institution. Community colleges in the country mainly offer three-year specialized degree programs with the 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). Academic departments are often the academic units in charge of reviewing and updating educational

programs. However, like most technical vocational institutions in developing countries, the middle management of SCC (i.e., HoDs) lack adequate professional capacity to lead regular and systematic curriculum renewals in their departments, resulting in curriculum development practices that are individual, intuitive, and centered around minor updates of course content by the course teacher (Chapter 2). Academic managers in developing contexts, especially HoDs, are usually promoted to these leading positions based on their teaching seniority, assuming that good teachers can be good leaders (Mattar, 2012; Yelder & Codling, 2004). The many managerial expectations of the HoDs and the inadequate incentives have made such an academic position at SCC less rewarding for those best able to perform it, which results in less qualified people (with lower academic degrees) holding such a position (cf. Yelder & Codling, 2004).

4.3.3 Procedures

The participating HoDs received two rounds of training, occurring in two successive years and coordinated by the researcher who also works at SCC. The design and the content of the training were informed by literature on academic leadership (e.g., Aziz et al., 2005; Chiriboga, 2003; Lattuca & Stark, 2009; Marlow & Minehira, 1996; Wolverson et al., 2005; Yelder & Codling, 2004). The first training round (PDA-1) aimed to improve the HoDs' curriculum development competency (Chapter 3). Besides learning about general concepts and principles of 'curriculum development', the HoDs learned how to plan and review the academic programs/courses systematically and how to develop clear and detailed program/course descriptions. The second round (PDA-2) focused on improving the HoDs' knowledge and understanding of the four major curriculum leadership tasks, as explained in the conceptual framework (See Figures 1.2 & 1.3 in Chapter 1).

Right after the second round of training, each HoD led a curriculum development project in his/her department. The project spread over an academic semester and was coordinated by the researcher (referred to as the project coordinator). The curriculum development project started with an orientation workshop followed by a kick-off session, attended by the participating HoDs, the senior management (the Dean and his vice-Dean), and some of the participating teachers. These introductory meetings aimed to introduce the project, agree on the intended outcomes (restructuring and updating the academic programs and developing program and course descriptions), and develop a shared overall action plan. Afterward, the HoDs coordinated weekly meetings with their teams to work on restructuring and re-describing their study programs.

Besides the training, the HoDs received other forms of support during the project. First, the HoDs were given a guidebook containing hand-outs, exemplary materials, and templates about, for instance, department mission, program learning outcomes, program and course descriptions, and curriculum mapping. Second, the HoDs received coaching during the teams' weekly meetings by the project coordinator and by a curriculum consultant from the college (referred to as the project consultant). Other support aspects included a decrease of the teaching loads for some HoDs, and the provision of monetary incentives and participation certificates.

4.3.4 Researcher positionality

To minimize threats that can affect the study credibility, due to the researcher involvement in the project, a number of measures for enhancing the trustworthiness of the study were considered (Shenton, 2004). First, the participants' participation was on a voluntary and confidentiality basis, thus strengthening the credibility of their inputs. Second, the use of triangulation (i.e., applying different data collection methods) helped compensate the individual limitations of each method. Moreover, sound procedures in cleaning up, analyzing, and interpreting the data were used as pointed out next.

4.3.5 Data collection and analysis

To allow for the triangulation of findings and, thus, improving the validity of the conclusions (Yin, 2003), five sources of data collection were used to answer the research questions (Table 4.2): 1- interviews of HoDs, 2- interviews of teachers, 3- minutes of teams' meetings, 4- observation notes of teams' meetings, and 5- researcher's field notes.

Table 4.2 *Data resources per research question*

Research Question	HoDs' interview	Teachers' interview	Observation	Meeting minutes	Field notes
1- How did the HoDs perceive their roles as curriculum leaders after receiving relevant training and assistance?	X				
2- How did the HoDs enact the four basic curriculum leadership tasks during the curriculum development project?		X	X	X	X
3- What was the support needed and the challenges encountered by the HoDs during the curriculum development project?	X		X		X

Interviews with the HoDs and teachers were both semi-structured and conducted at the end of the curriculum development project (see Appendix C for the instruments). The interviews were audiotaped and transcribed. The HoDs' interviews explored their perceptions of their role as curriculum leaders in light of the support provided. The interviews also investigated the challenges the HoDs encountered during the project and their reactions to the support they received and the support they would expect from the senior management to practice curriculum leadership effectively. The teacher interviews focused on the teachers' evaluation of their HoDs' performance during the curriculum development project. The teacher interviews included a five-point rating scale (1 = the least evident, 5 = the most evident) for the teachers to evaluate their HoDs' implementation of the four major curriculum leadership tasks. The rating form included the curriculum leadership task, its operationalization, and the rating space. The observation data came from the notes of the project coordinator and the project consultant who attended the teams' weekly meetings. The data collected from the meeting minutes of the teams and from the researcher's field notes were used to verify the findings from the above sources.

All the data collected were qualitatively analyzed using the general inductive approach (Thomas, 2006) except for the construct 'curriculum leadership tasks' which was predefined and operationalized (i.e., deductive analysis). Data from the five sources were cleaned up, reduced, and transformed to *Word* files. A qualitative analysis software (Atlas.ti7) was used to code all the data. The qualitative analysis went through four main phases. First, based on the research questions/objectives, four major codes/themes of interest were identified (Table 4.3). Second, text quotations that could be associated with any of these four major codes were coded. Third, the four codes along with their quotations were sorted out and went through another round of analysis to identify emerging sub-codes. Fourth, within the sub-codes, a number of strategies for generating meaning (Miles & Huberman, 1994) were used such as counting occurrences, observing emergent themes, grouping, and building a logical chain of evidence. Direct quotations were reported to support the themes identified.

To ensure an acceptable level of interpretation consistency, intercoder reliability (Cohen's kappa) was calculated (with the help of research assistants, functioning as second coders) on a random sample of about one third of the quotations. Kappa values were found to be substantial according to Landis and Koch (1977). Table 4.3 shows the outcomes of the coding analysis.

Table 4. 3 *The data coding outputs*

Major Codes	No. of sub-codes	Cohen's kappa	Sub-code & example quotation
Curriculum leadership tasks	4	.75	<p>1- Establishing purpose "This is an initial meeting . . . The HoD introduced the project to the teachers, informed them about the curriculum problems the department is facing and the kind of curricular changes needed".</p> <p>2- Providing structure and support "Managing the team was a bit poor, as she wanted everything at the same time and late, by the end of the project. Assigning tasks was too late; it should have been earlier".</p> <p>3- Promoting collaboration "He did not approve things until he discussed them with us and we agreed. He used to listen to our ideas".</p> <p>4- Coordinating efforts "He was to come first to the meetings. He would call us and bring us together. He made an action plan, assigned tasks to us, contacted industry . . . [he] organized the team work quite well".</p>
HoDs' challenges	5	.76	<p>1- Technical aspects of curriculum development "The hardest part was formulating the program learning outcomes because of our little experience in this issue".</p> <p>2- Teamwork management "I had a little difficulty handling varying views on the design of the program".</p> <p>3- Teacher- related issues "The department teachers' expertise is limited".</p> <p>4- Departmental issues "... the accumulated problems of the department from previous years without having them solved; [this] crippled us from taking big steps in this project".</p> <p>5- Lack of senior management support "Regarding the role of the senior management, I would say that they were absent during the project. I expected them to follow up on us, come see our meetings, support and encourage us".</p>
Support provided & needed	3	.73	<p>1- Training "The training was very important! Without it, I would not be able to cover even a small part of the project".</p> <p>2- Coaching "The HoD asked the project coordinator for help to do the curriculum mapping. The coordinator drew a table on the board to show the team how to do that easily".</p> <p>3- Future support "We need follow-up from the senior management as these would remind the departments and motivate them to work continuously on curriculum development issues".</p>
HoDs' perceptions of curriculum leadership	2	.75	<p>1- Importance of this role for HoDs "When I first became an HoD, my perception of the job was of a facilitator of the routine administrative operations; we did not get into curriculum development. The HoD's main task needs to be leading the curriculum development work in the department".</p> <p>2- Curriculum leadership requiring support "I believe (through my participation in the project) that learning about curriculum development should come before any curriculum development work. I think that the training workshops and my actual participation gave me confidence in leading this project".</p>

4.4 Findings

4.4.1 How did the HoDs perceive their role as curriculum leaders after receiving relevant training and assistance?

In light of the two rounds of training and the hands-on experience of leading a curriculum development project, the interview data captured the HoDs' perceptions of their role as curriculum leaders. HoD *a* reported that he realized how extended the job of an HoD was, and that an HoD had to play a critical role regarding curriculum development. He also believed now that for an HoD to assume curriculum leadership, professional support and guidance were needed. He explained:

For the HoD to be a leader of curriculum development, he needs to have knowledge about leadership, management, and organizing things, have charisma and of course needs to be trained on curriculum development because he would not be able to lead these activities the way it should be without this kind of knowledge.

For HoD *b*, he changed his view of the HoD's job. He used to believe that curriculum development was the responsibility of the senior management and that the department teachers were more of curriculum implementers. He stated, *"I used to view my role as a facilitator of the administrative operations, but now I have realized that the HoD needs to play a major role in improving the department curriculum besides his administrative work"*. Like HoD *b*, HoD *c* previously perceived her job as an HoD to be more of handling administrative work such as scheduling courses and addressing students' issues. However, she believed now that *"the HoD is the one who should be in charge of curriculum development and the one who should search for opportunities for curriculum improvements"*. She also explained that a curriculum leader had to learn about curriculum development. For HoD *d*, he found the training and the current project reinforcing for his vision about leading and coordinating curriculum development activities in his department. Like the other HoDs, HoD *d* asserted that for an HoD to be a curriculum leader, attending training workshops on curriculum development was essential.

4.4.2 How did the HoDs enact the four basic curriculum leadership tasks during the curriculum development project?

We review, here, how the HoDs demonstrated the four curriculum leadership tasks during the curriculum development project based on a synthesis of the data from the teachers' interviews, observation of the teams' meetings, minutes of the teams' meetings, and field notes.

Based on the five-point rating scale, HoD *a* was rated the highest, compared to the other HoDs, by his team teachers on the four curriculum leadership tasks (establishing purpose, providing structure and support, promoting collaboration, and coordinating efforts). The average rating by the two team teachers was (5) for each task except for the 'promoting collaboration' task, which was (4.75). HoD *a* was reported by his teachers to have established a clear sense of direction and clarified the purpose of each curriculum development task and the overall goal of the whole project (establishing purpose). HoD *a* also developed an action plan, explained concepts and procedures, and encouraged the team teachers (providing

structure and support). One of the teachers said, *“the HoD explained to us the meaning of the department mission and goals before we worked on developing such aspects. He provided us with templates and examples . . . and appreciated my work although I have little experience”*. The team teachers explained that the HoD encouraged collaboration among the team members, urged them to make comments on the work he initially developed, ensured collaborative decision making, and involved all department teachers through inviting them to some meetings in order to have their say about the intended curricular changes (promoting collaboration). The teachers also pointed out that HoD *a* reached out to the department teachers, students, and external experts, and coordinated their efforts and contributions (coordination). One of the teachers appreciated how HoD *a* led the team. She noted,

It was a successful team because of the collaboration and exchange of ideas between the team members and because of our team leader who helped us understand unclear concepts about the curriculum development process. He gave us useful instructions for our work, and the result of this successful leadership was the restructuring of our program systematically and professionally.

Like HoD *a*, HoD *b* was also highly rated by his team teachers on the four curriculum leadership tasks and demonstrated similar curriculum leadership patterns. The average rating by the two team teachers was (5) for the tasks ‘providing structure and support’ and ‘promoting collaboration’ while it was (4.5 and 4.75) for the tasks ‘establishing purpose’ and ‘coordination’, respectively. For the first task (establishing purpose), the team teachers reported to be clear on what they were doing with their curriculum during the project, and that the goals were communicated clearly. HoD *b* also made an action plan, clarified the work procedures, and used the templates in the guidebook (providing structure and support). For the third task (promoting collaboration), the teachers reported that the HoD listened to their inputs, involved them in decision-making, consulted the college Dean and some department teachers, and was respectful and encouraging for teachers to propose ideas. One teacher explained that the HoD would not approve changes until the whole team had discussed and agreed on them unanimously. For the fourth task (coordination), the teachers reported that the HoD established links between the team and curriculum stakeholders such as subject matter experts, senior management, and industry on issues concerning the curriculum content, the new title of the program, and the modification of some courses.

The team teachers of HoD *a* and HoD *b* both attributed their HoDs’ satisfactory performance to factors such as their more knowledge about curriculum development, their dedication to improving the department curriculum, and the management and leadership skills they showed during the project. The reported appreciated practices included: providing a sense of direction and a clear work structure, being flexible with deadlines and task assignment, showing respect, appreciating the teachers’ contributions, making decisions collaboratively, and handling the teachers’ varying views properly.

For HoD *c*, although she managed with her team to achieve the goals of the curriculum development project (restructuring and re-describing the program and some core courses), she was rated the lowest by her teachers. The average rating of the four curriculum

leadership tasks was (1, 2.5, 1.5, and 2.5, respectively). She was observed to be authoritarian and unable to resolve conflicts within the team. The project coordinator and the project consultant had to intervene several times, especially close to the project end, to bring the team together and provide suggestions for handling the curriculum development tasks. The team teachers pointed out that their HoD could *not* establish a shared vision about what and how the academic program would be restructured (establishing purpose). The teachers also noted that their HoD did not develop a clear work structure and did not encourage them (providing structure and support). In the words of one teacher,

She did not initially make an action plan. So, we brought an action plan from another team to show her and to learn from it. After insisting, she made one, which was just a copy of the one we brought. The action plan was not feasible and she did not involve us in its development.

The team teachers pointed out that the HoD did not involve them adequately in decision-making, and did not manage the conflicts within the team professionally (promoting collaboration). They also noted that assigning tasks and linking the team efforts with other curriculum stakeholders (coordination) were poor. One teacher explained that *"there was not adequate encouragement. There were conflicts between the team leader and one colleague. We were behind schedule; we could not meet the deadline for each phase of the curriculum development process. There was not a clear task assignment"*.

For HoD *d*, although he could not lead the team towards realizing the project outcomes as HoD *c* did, he had a better average rating than HoD *c* (3, 3, 4, 3.5, respectively). This can be explained by the challenging context of the department of this team (e.g., the lack of teachers and the heavy workloads), which probably made the team teachers less critical of their HoD's curriculum leadership during the project. The teachers reported that they did not work systematically in re-designing their program and could not have regular curriculum development meetings. For example, they did not conduct a needs assessment, surveying students and industry, like the other teams. They just depended on what they already knew about the current program weaknesses. Quite few unstructured meetings were held in which they focused on discussing the department vision, mission, and goals and modifying the program overall outline. In the words of one teacher,

The HoD did not build a work structure. We used to bring the exemplary materials from the guidebook to show him what we needed to do. I do not think that he looked at it. He was too busy to structure the project and assign tasks.

The team teachers of HoD *c* and HoD *d* attributed their HoDs' unsatisfactory performance to factors such as the inadequate interpersonal and teamwork skills (HoD *c*), and the busy administrative agenda of the HoD (HoD *d*). On the other hand, HoD *c* blamed her team teachers for not doing the tasks assigned on time and for having limited subject matter knowledge. HoD *d* attributed his team's unproductivity to the departmental problems they had to deal with rather than referring to his teachers' characteristics or behavior.

4.4.3 What was the support needed and the challenges encountered by the HoDs during the curriculum development project?

Curriculum leadership support

All HoDs found the two rounds of the in-service training (prior to the project) very useful and supportive in leading their departments' curriculum work. They pointed out that the knowledge they gained helped/would help them organize and structure the teamwork, encourage the department teachers to contribute to curriculum development, and work systematically in renewing their programs. HoD *a* explained that *"The training was very important! Without it, I would not be able to cover even a small part of the project"*. For HoD *c*, it was the combination of the training and the actual experience of leading the curriculum development project that showed her:

. . . how to form curriculum development teams, how to manage time, how to have a big heart when dealing with others, showed me the tasks I need to do to lead the team. I, as an HoD, used to do things intuitively and based on my personal judgment. I learned about the concept of leadership, how to lead a team.

Moreover, all HoDs highly valued the guidebook with its examples and templates, explaining that it facilitated their work and saved their time during the curriculum development activities a great deal. The HoDs also appreciated the decrease of the teaching loads and the incentive package.

Although the pre-project support received by the HoDs (i.e., the training and the guidebook) was of great use, it was found that the HoDs were in great need for guidance and coaching during the actual curriculum development work. The coaches' intervention was either a response to the HoDs' queries about issues such as developing the program learning outcomes, collecting/analyzing data, and mapping the curriculum or was initiated by the coaches when noticing that the teams went off track or handled some curriculum development activities inappropriately such as neglecting formative evaluation. HoD *b* remarked, *"We were aware of the curriculum development phases, but went off track at times and because of the coach help we got back on track"*.

It was also observed that the support needed by the HoDs during the project varied. For HoD *a* and HoD *b*, they mainly needed support on the technical aspects of curriculum development with HoD *a* needing less support than HoD *b* – apparently due to his greater teaching experience and his more attachment to industry. For HoD *c*, she realized that she needed further training on interpersonal and teamwork management skills. HoD *d* held very few informal meetings, which could not be observed. It seemed that he and his team needed better departmental conditions.

Future support reported by the HoDs to practice effective curriculum leadership centered around two themes. First, all HoDs reported the need for further training focusing on deeper understanding of the technical aspects of curriculum development. HoD *b* and HoD *c*, in particular, needed more training on the leadership and management aspects of the curriculum development process such as time management and conflict resolution. Second, all HoDs stressed the need for senior management support through, for example, providing

incentives to work on renewing their programs/courses, following up on their work, decreasing workloads, and developing a curriculum development strategy that spells out clear procedures and defines curriculum development responsibilities for teachers, HoDs, Heads of Division, and other relevant stakeholders. In the words of one HoD,

We want to reach this point [having detailed curriculum plans], but this requires that the senior management knows about the details of our plans in order to facilitate their implementation. The senior management should first make a clear strategy for implementation. Projects in the college are like events that vanish as they finish.

Curriculum leadership challenges

The challenges the HoDs encountered in leading the curriculum development activities can be grouped into three major aspects. First, the HoDs found handling the technical aspects of curriculum development a challenge. Three of the four HoDs reported that this was their first time to work on developing their curriculum *systematically*, and that the training they had was more theory-oriented. The technical aspects included 1- finding and/or involving external curriculum stakeholders (e.g., target employers and subject matter experts) to provide input and conduct formative evaluation for the team's work, 2- phrasing the program/course learning outcomes accurately and comprehensively, and 3- developing data collection instruments and analyzing the data.

The second challenge concerned teacher-related issues within the team or in the whole department. This included varying commitment and motivation, inadequate curriculum development competency, and limited subject matter knowledge. One HoD explained that *"we do not have senior teachers in the team to provide expert advice on issues of conflict. The team teachers are at the same level and experience"*. The third challenge related to the lack of senior management support. All HoDs pointed out that the top leaders were oftentimes absent during such projects, and that they expected the top leaders to provide encouragement and follow-up on what they were doing. Personal communication with the senior management during the curriculum development project revealed an expectation gap between the middle and senior management. While HoDs expected training workshops, incentives, time release, and follow-up on their curriculum work, the college Dean blamed HoDs for not exerting adequate efforts pertaining to the academic aspects of their job such as reviewing curricula and developing annual academic plans. The vice-Dean showed, however, more understanding of the HoDs' needs. He explained that the limited budget of the college was a major obstacle in fulfilling these needs. Both the Dean and the vice-Dean believed that commitment and self-motivation were important characteristics of HoDs to lead effective curriculum development activities within the limited resources of the college.

Specific challenges for each HoD were also noted. For HoD *a* and HoD *b*, both of them had no difficulty managing the teamwork as they demonstrated good management and leadership skills according to their teachers. A major challenge for them was their inability to involve more industry representatives and subject matter experts so that they could improve the relevance of their programs and conduct formative evaluation. HoD *b* explained that most of these external stakeholders were busy and not *extrinsically* motivated to participate in reviewing academic programs. For HoD *c*, besides having a difficulty working

systematically and involving external curriculum stakeholders, she had a major challenge handling the conflicts within the team and providing a clear work structure as previously explained. HoD *d* reported that the organizational structures (e.g., lack of clear expectations and procedures of the HoD's job) and the departmental problems (e.g., lack of teachers, lack of time, and students' issues) did not help him lead the curriculum development project towards realizing the intended outcomes.

4.5 Conclusion

This study explored how some HoDs of a community college in a developing context perceived and enacted curriculum leadership tasks after receiving relevant training and support. It also captured their perceptions of the support they received and the challenges they encountered during a curriculum development project that they led.

This study shows that HoDs in technical vocational community colleges in developing countries highly value their role as curriculum leaders especially when receiving relevant training and support. The findings indicate a change in the perceptions of the HoDs about how critical the role of a curriculum leader is. However, the HoDs stress that for them to practice effective curriculum leadership, professional and organizational support is required. This shows that not only the professional development for a specific HoD's role helps clarify and broaden HoDs' perceptions of its nature (Aziz et al., 2005), but also makes HoDs aware of the support aspects needed for such a role. The multiple forms of support received, especially the training, were highly appreciated by the HoDs for their relevance and usefulness to their role as curriculum leaders. However, the findings clearly show that training workshops per se are inadequate for HoDs to lead *systematic* curriculum development undertakings. The provision of coaching, exemplary materials, and templates proved to be of great use and a time saver for the HoDs' efforts. The findings also indicate that the professional support that HoDs need during curriculum development projects appear to vary, and that this support concerns three main areas: curriculum development, management, and leadership. Furthermore, the way HoDs enact curriculum leadership tasks and the challenges they encounter during implementation seem to vary as well by factors such as the HoD's commitment, management and leadership skills, knowledge about curriculum development, and the department context.

This study does have some limitations. The study explored the case in a single site in a developing context, thus the conclusions derived cannot be generalized. Rather than aiming for statistical generalization, the study endeavored to develop an in-depth understanding of how the professional support for and the enactment of curriculum leadership by HoDs play out in the study context.

4.6 Discussion and Implications for Practice

In light of the study findings and in congruence with literature addressing curriculum leadership (e.g., Glatthorn et al., 2012; Marlow & Minehira, 1996; Sorenson et al., 2011; Stark et al., 2002), the following implications for practice are discussed.

(1)- For HoDs in community colleges to demonstrate effective and sustainable curriculum leadership, both professional and organizational forms of support are needed. For the professional development part, HoDs need to receive professional support, *to varying degrees*, in three broad overlapping competencies: curriculum development, management, and leadership. Although the management and the leadership domains are usually used interchangeably both in the academic leadership literature and in practice, causing confusion about HoDs' work tasks (Cardno, 2013), researchers are increasingly recognizing the distinctiveness of these two domains and their overlapping and complementary nature. The leadership domain is highly contextual, more proactive, more personal, and more focused on change and goal setting while the management domain pertains to establishing and maintaining effective managerial procedures (Bush, 2008; Cardno, 2013, Cuban, 1988; Fidler, 1997). This study stresses, however, the consideration of the curriculum development competency domain in the professional preparation and practice of college HoDs as they are more attached to the curriculum development practices than senior managers. A further step in the development of the curriculum leadership of the participating HoDs can lie in their purposeful involvement in leading regular reviews of their academic programs, supported by tailored coaching and training (to suit the varying individual needs) and accompanied by opportunities for structured reflections.

(2)- For the organizational support, senior managers of community colleges need to establish clear and shared expectations of HoDs regarding curriculum development. Further, they need to ensure favorable work conditions and structures in order to help HoDs practice effective curriculum leadership. Contextual barriers, as the findings of this study indicate, can greatly affect how HoDs enact curriculum leadership (Aziz et al., 2005; Lattuca & Stark, 2009; Stark, 2002).

(3)- Both the professional and the organizational forms of support needed by HoDs to exercise effective curriculum leadership are highly context-sensitive. The knowledge, skills, and tasks associated with each of the above three broad competencies need to be defined in light of the college/department context as different settings and times demand different considerations (cf. Cuban, 1988). In developing countries where resources are limited and thus professional development opportunities are scarce, HoDs seem to be in need for in-service professional support in all these competencies (Gervedink Nijhuis et al., 2012).

(4)- A major threat to realizing sustainable curriculum leadership practices by HoDs, especially in developing contexts, is the absence of senior management support and encouragement. Besides professional support, HoDs demand monetary incentives and time release so that they can focus on leading curricular innovations (Albashiry et al., 2015). Another threat to sustainable curriculum leadership in such contexts concerns the high rate of HoDs' turnover, due to their search for better job offers, which risks the stability of academic departments and hence affects sustainable curriculum development practices (cf. Gervedink Nijhuis et al., 2012; cf. Smit et al., 2010).

(5)- Given its dual focus on improving practices in a real-world setting and contributing scientific and usable knowledge, which can be informative for practitioners in similar

contexts, educational design research holds great potential to help understand how HoDs' curriculum leadership can be supported and sustained in community colleges. Moreover, given its emphasis on the collaboration of all concerned stakeholders, this kind of research could (if done properly) result in more sustainable solutions and offer learning opportunities for the stakeholders during the intervention design and implementation process (McKenney et al., 2006). Additional research using this approach is needed to further explore how curriculum leadership is supported and sustained in other contexts.

CHAPTER 5 - TEACHER COLLABORATIVE CURRICULUM DESIGN IN TECHNICAL VOCATIONAL COLLEGES: A STRATEGY FOR MAINTAINING CURRICULUM CONSISTENCY?⁴

The Technical Vocational Education and Training (TVET) curriculum requires continuous renewal and constant involvement of stakeholders in the redesign process. Due to a lack of curriculum design expertise, TVET institutions in developing contexts encounter challenges maintaining and advancing the quality and relevance of their programs to the needs of the labor market. Based on the data collected in the previous study (Chapter 4), this sub-study focuses on describing the potential of teacher collaborative curriculum design (TCCD) as an institution-based curriculum development strategy for improving the internal and external consistency of TVET curricula. The study describes how four teams from different TVET college departments redesigned their programs systematically and relationally to improve their internal and external consistency. The findings indicated that although the teams found the re-design task a challenge, they felt positive about the TCCD experience and its outcomes. The design teams also perceived the consistency of their programs to have improved. The criticality of the support offered to the teams and the variety of the teams' design work were salient themes captured during the design process. It is concluded that *supported* TCCD teams, applying a systematic and relational approach, can be an efficient strategy for maintaining the consistency of the TVET curriculum.

5.1 Introduction

Governments in developing countries are becoming increasingly aware of the potential of Technical Vocational Education and Training (TVET) in reducing poverty and unemployment, and hence contributing to the national economic growth (Agrawal, 2012). Expansion of TVET institutions and development of government TVET strategies are evident in these countries' national development plans (Bakah et al., 2012a; Bureau of the Conference of Ministers of Education of the African Union, 2007; European Training Foundation & World Bank, 2004). This interest in TVET stems from realizing the role this educational form can play in preparing a middle-level skilled workforce and independent entrepreneurs for the world of work (Boateng, 2012b; Finch & Crunkilton, 1999). However, there is a growing bulk of research indicating a gap between the outcomes of TVET institutions (i.e., the graduates) and the needs of the labor market (e.g., Agrawal, 2012; Baqadir et al., 2011; Lai & Lo, 2008).

⁴ This chapter is based on: Albashiry, N., Voogt, J. M., & Pieters, J. M. (2015). Teacher collaborative curriculum design in technical vocational colleges: A strategy for maintaining curriculum consistency?. *The Curriculum Journal*. doi: 10.1080/09585176.2015.1058281

TVET curricula in such contexts are reported to be of low quality, supply-driven, and inconsistent with the industry and business needs (European Training Foundation & World Bank, 2004; Shaorshadzeb & Krishnan, 2012). Employers expect TVET programs to be broader in goals and content, focusing on aspects such as generic and entrepreneurial skills, adequate vocational knowledge, work ethics, and adaptability (Baqadir et al., 2011; Boateng, 2012b; Lai & Lo, 2008). Meeting such curricular expectations and the overall mandate of maintaining and enhancing the quality and relevance of TVET programs is usually left to the leaders of TVET institutions to struggle with, who (in turn) pass this task to the academic departments, assuming that their subject matter knowledge and industrial experience will 'do the job' (Agrawal, 2012; Albashiry et al., 2015; Bakah et al., 2012b). Lacking resources and curriculum design expertise, major curriculum renewals in TVET academic departments are abandoned, and hence common curriculum renewal practices remain occasional, individual, course-centered, and ad hoc endeavors without the involvement of industry representatives (Akomaning et al., 2011; Punia, 2001).

Regular renewals of TVET curricula through applying a relational (collaborative) and systematic approach is critical in order to improve curriculum design practices and hence maintain the consistency of TVET curricula with the needs of the labor market (Finch & Crunkilton, 1999; Kessels, 1999; Kessels & Plomp, 1999). Recognizing common sub-standard curriculum design practices at TVET academic departments, emerging empirical literature in developing countries promotes teacher collaborative curriculum design (TCCD) as a promising strategy for improving both the TVET curriculum and the curriculum design skills of teachers (Akomaning et al., 2011; Bakah et al., 2012b).

These studies reported positive outcomes in specific aspects of the TVET curriculum such as the renewing of the internship curriculum through the involvement of concerned stakeholders in the design and implementation activities (Akomaning et al., 2011). Another example concerned the successful updating of course content through teachers' visitations to industry in order to keep themselves abreast of new technological advances and then update the courses accordingly (Bakah et al., 2012b). However, these studies did not clearly explain the theoretical approaches to curriculum design that the teacher teams used during these curriculum renewal undertakings.

The purpose of this study was to describe how four professionally supported TCCD teams redesigned their educational programs systematically and relationally so as to enhance the consistency of their programs. The study also captured the teachers' perceptions of the TCCD process and outcomes. The context of this study is a TVET community college in Yemen which shares similar curricular characteristics and challenges to those found in other developing countries. This study can be instructive for TVET academic departments that wish to improve the consistency of their programs.

5.2 Conceptual Framework

5.2.1 Relevant approaches to TVET curriculum design

Curriculum design can be defined as the (re)development of academic plans or blueprints for student learning, capturing the educational goals, structures, content, and learning activities (Lattuca & Stark, 2009; Taba, 1962; Wiles, 2009). Curriculum design at the program level is commonly tackled through a systematic approach (Gustafson & Branch, 2002). The main defining feature of this approach is its great emphasis on the identification and formulation of the program learning outcomes/goals which then form the foundation for subsequent design activities such as designing and developing the program content, learning strategies, and assessment tools (Piskurich, 2006; Visscher-Voerman et al., 1999). Although the literature is replete with models depicting the systematic approach, these models commonly portray an iterative cycle of five phases: analysis, design, development, implementation, and evaluation (Visscher-Voerman & Gustafson, 2004).

Despite its attractiveness, the systematic approach per se does not adequately address a major consideration in the design of the TVET curriculum, that is, the extent to which the curriculum corresponds to the needs of the stakeholders (Finch & Crunkilton, 1999). A relational approach is needed to emphasize the context-determined value of the curriculum (i.e. the social aspects of curriculum design) to which the systematic approach pays little attention (Kessels, 1999; Kessels & Plomp, 1999). The core of a relational curriculum design process is the extensive collaboration and deliberations between the design team and the program stakeholders (e.g., students, teachers, and employers) throughout the design process to reach consensus and a shared vision about what the educational program should be like (e.g., program structure, content, and pedagogy) and how it should be developed and implemented (Kessels & Plomp, 1999; Van den Akker, 2003). A quality design, from this approach perspective, is realized when the design product meets the standards as shared by the design team and the stakeholders, and a quality design process is one in which there are activities aiming at and resulting in consensus and shared clarity and vision about the design product and its development process (Kessels, 1999). The main role of the designers and the clients in systematic and relational approaches differ. In the first, the responsibility of the design is mainly the designers' (functioning as experts and decision makers) while the clients are more of information providers, whereas in the latter the design responsibility is a shared matter between the designers (playing a facilitator's role for the deliberations during the design process) and the clients, functioning as co-designers (Visscher-Voerman & Gustafson, 2004).

Therefore, both systematic and relational design processes are needed to realize curriculum consistency (Kessels, 1999). Programs are considered curricularly consistent when curriculum design activities are coherent and aligned both internally and externally. Internal consistency exists when there is coherence between the curriculum design phases, for example, the consistency between the analysis outputs (i.e., the desired changes) and the program design (Kessels & Plomp, 1999); and harmony between the program components such as learning goals, content, instructional strategies, and the evaluation methods (McKenney et al., 2006). Another form of internal consistency includes the harmony between

curriculum forms (i.e., the formal/intended curriculum, the implemented, and the attained), and the alignment of the curriculum with the educational institution and system (cf. Finch & Crunkilton, 1999; McKenney et al., 2006; Punia, 2001). External consistency, on the other hand, refers to the coherence between the perceptions of the design team and those of the curriculum stakeholders about the program design, development, and implementation (Finch & Crunkilton, 1999; Kessels & Plomp, 1999). Kessels (1999) postulates that applying a *systematic approach* improves the internal consistency of educational programs, whereas a *relational approach* enhances their external consistency.

Empirical studies indicate positive outcomes of conducting curriculum design activities associated with these curriculum design approaches. Akomaning (2012), for instance, found that teacher design teams successfully designed an internship curriculum which resulted in the development of effective internship guidelines and learning materials for interns. The implementation of this curriculum eventually led to both enhanced student workplace learning and improved internship practices in aspects such as student placement, internship tasks, and student supervision. These positive outcomes were attributed to the involvement of the institution management, students, and industry representatives in collaboratively identifying the curriculum problem and developing the curricular intervention (a relational approach). Similarly, Ko (2008) concludes that systematic reviewing of curricula, which integrates inputs from students, teachers, and industry during curriculum design undertakings, results in these stakeholders' satisfaction about the relevance, usefulness, and practicality of the developed curriculum.

From a K-12 context, Huizinga et al. (2015) reported that professionally supported teacher design teams managed to align their curricula with a new regional framework (internal consistency) through applying a systematic approach in designing and implementing new curriculum materials (e.g., authentic learning tasks, assessment rubrics, and examination guidelines). However, the author noted that the teachers skipped or paid little attention to the analysis and formative evaluation activities which are inherent in a systematic design process. He explained that teachers would need professional support throughout the actual design process so as to develop a comprehensive understanding of the systematic approach, especially of the analysis and evaluation phases of the process. The author also pointed out that teachers' involvement in systematic and collaborative curriculum design afforded them the opportunity to improve their curriculum design expertise through the external professional support provided, the collegial discussions, and the collective reflections on the implementation experiences of the developed materials.

5.2.2 Potentiality of teacher collaborative curriculum design in enhancing curriculum consistency

Curriculum design approaches/models (like the above ones) are originally meant for professional curriculum designers to use, who are usually external to the institution where the curriculum is to be used. This can lead to poor teacher ownership of the curriculum being (re)designed and hence poor curriculum implementation (Fullan, 2007; Marsh & Willis, 1999). Teacher ownership can be fostered by involving teachers as curriculum 'designers' rather than 'implementers' per se (Marsh & Willis, 1999; Pratt, 1994). Teacher involvement is,

however, encouraged to be within a collaborative framework whereby the multiple viewpoints and collective expertise of teachers lead to curricular improvements across the educational program (Pukkila, DeCosmo, Swick, & Arnold, 2007).

Teacher collaborative curriculum design (TCCD) is widely advocated in the curriculum design literature for its positive impact on various aspects. Besides being an effective teacher professional development strategy (e.g., Voogt et al., 2011) empirical findings also indicate that TCCD can also improve the harmony between the formal and the implemented curriculum (internal consistency) and enhance the department teachers' collaborative work and their ownership of the curriculum (Bakah et al., 2012c; George & Lubben, 2002; Handelzalts, 2009; Nihuka & Voogt, 2012). In a TVET context, teacher collaboration is expected to extend to incorporate external stakeholders such as industry representatives to establish the curriculum external consistency (Kessels, 1999; Finch & Crunkilton, 1999). However, the external consistency of TVET in developing countries is threatened by the reported lack of collaboration between the TVET institutions and industry (Akomaning et al., 2011).

As TVET departments are mandated to maintain the quality and relevance of their programs, the potential of TCCD in improving the internal and external consistency of TVET programs is a research area awaiting further investigation. Thus, this study investigates how four TCCD teams from four TVET academic departments endeavored, after receiving relevant training and support, to improve the internal and external consistency of their programs through applying systematic and relational curriculum design procedures. The study addresses the overall question: *"What is the potential of teacher collaborative curriculum design for improving the external and internal consistency of TVET curricula?"*. This question has been operationalized into two sub-research questions that guided the data collection and analysis.

1. How do TCCD teams in TVET colleges redesign their curricula systematically and relationally, and what design outcomes do they achieve?
2. How do TVET department teachers value the TCCD process and outcomes as a strategy for maintaining curriculum consistency?

5.3 Methods

5.3.1 Case and participants

This study adopted an embedded multiple-case design (Yin, 2003). The cases in this study were four TCCD teams representing different departments at a TVET community college. The participating team members along with the resultant curricular products formed the units of analysis. The TCCD teams participated voluntarily in this study. Each team was composed of three teachers including the Department Head, functioning as the team leader. The curriculum development project and the four Department Heads referred to in this study were the same ones reported about in Chapter 4. Table 5.1 shows background information about the participants of this study.

The case study approach was used as it fit the purpose of this study— describing and explaining *how* and *why* a contemporary phenomenon functioned 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 generalization’; it rather endeavored to contribute to the theoretical understanding (analytical generalization) of the phenomenon under study (applying a systematic and relational approach by TCCD teams to improve the curriculum consistency) as undertaken by a specific group of people in a specific context.

Table 5.1 *Background information about participants*

		Age	Academic Degree	Type of employment	Teaching experience (in years)
Team a	HoD* a	42	Bachelor	employed	2 (in position)
	Teacher 1	35	Master	employed	9
	Teacher 2	26	Bachelor	employed	1
Team b	HoD b	28	Bachelor	employed	3 (in position)
	Teacher 1	26	High diploma	adjunct	2
	Teacher 2	23	High diploma	adjunct	1.5
Team c	HoD c	26	Bachelor	adjunct	1.5 (in position)
	Teacher 1	28	Bachelor	employed	1
	Teacher 2	29	Bachelor	employed	4
Team d	HoD d	41	PhD	employed	1.5 (in position)
	Teacher 1	33	Bachelor	employed	7
	Teacher 2	30	Bachelor	adjunct	7

Note. * HoD= head of department

5.3.2 Study context

Sanaá community college is a leading post-secondary TVET institution located in the capital city of Yemen, Sanaá. Like other community colleges in the country, this college offers career-related and specialized diplomas, with an overall mandate of strengthening the link between post-secondary education and the labor market needs. According to an ex-vice Dean, curriculum renewal of the college programs are the responsibility of the academic departments; however, he explains that major curriculum reviews are limited and mostly influenced by the motivation and personal judgements of the departments due to the lack of professional and curriculum development support from the ministry of TVET (personal communication, March 27, 2012). Department Heads and teachers at community colleges in the country are mostly professionals without pre-service training on curriculum development and pedagogy.

A previous study (Chapter 2) found that curriculum design practices within the college departments were mostly individual, ad hoc, and centered on modifying the contents of individual courses, thereby affecting the interconnectedness of the whole program (i.e., an internal consistency issue). Another major curricular problem the study identified was that the departments’ formal curricula, notably the program/course descriptions, were either missing or ill-defined. Department Heads attributed this issue to the lack of curriculum design expertise in their departments and the frequent mobility and attrition of both the

Department Heads and teachers (searching for better-paying jobs), which caused course descriptions to go missing.

5.3.3 Procedures

Before the four teams started to work on re-designing their programs (a core component of the PDA-2, see Figure 1.3 in Chapter 1), there were plenary/orientation sessions that brought together the newly appointed Dean, the vice-Dean for academic affairs, the Department Heads, and some teachers. These early sessions aimed to share the findings of the context and needs analysis study and agree on the project goals and its action plan. It was agreed that the overall goal was for the participating department teams to systematically and relationally redesign their formal curriculum (i.e., program and course descriptions) with the focus being on first developing the currently missing curriculum components, second linking the courses with the program yet-to-be developed learning outcomes (internal consistency), and third aligning the curriculum with the needs of the stakeholders (external consistency). Each Department Head selected, on a voluntary basis, a number of teachers to work on this program renewal undertaking. The teams had weekly meetings, and the project lasted for about one full semester (four months) including the training part that the teams received prior to the re-designing undertaking.

The training received was informed by literature on generic curriculum concepts and on systematic and relational curriculum design (e.g., Kessels, 1999; Piskurich, 2006; van den Akker, 2003; Visscher-Voerman et al., 1999). The training topics included the broad definition of 'curriculum', curriculum stakeholders, representations of curriculum (i.e., the intended, enacted, and attained curriculum), the systematic design cycle, and the program/course description. Besides the training, the participating teams were provided with a curriculum development guide to help them during the program re-design undertaking, which included brief hand-outs, templates, and exemplary materials. Moreover, the teams received coaching during their weekly design meetings by the project coordinator (the researcher and a teacher in the college) and by a curriculum consultant from the college. Symbolic monetary incentives for participants and basic operational budgets were also provided for each team.

5.3.4 Data collection and analysis

To improve the study credibility and trustworthiness, triangulation of data collection methods and use of sound systematic data analysis procedures were employed (Shenton, 2004). Table 5.2 shows the data collection methods sorted by the research questions (see Appendix C for the instruments).

Table 5.2 *Data collection methods per research question*

Research Question	HoDs' I*	Teachers' I*	Teams' O*	Teams' MMs*	FNs*
1. How do TCCD teams in TVE colleges redesign their curricula systematically and relationally, and what design outcomes did they achieve?	X	X	X	X	X
2. How do TVE department teachers value the TCCD process and outcomes as a strategy for maintaining curriculum consistency?	X	X	X		X

Note. * HoD= head of department, I= interview, O= observation, MMs= meeting minutes, FNs= field notes

All interviews were semi-structured and audiotaped, and relevant parts were transcribed. Interviews with the Department Heads and teachers explored what and how they went about the program renewal undertaking along with the challenges encountered during the main phases of the curriculum design process. They also explored the participants' perceptions of the TCCD process and outcomes. The observation data came from the coaches (the project coordinator and the curriculum consultant) who attended most of the meetings' weekly sessions. The coaches played a dual role, writing down their observations during the teams' meetings and providing help when necessary. The observers noted what actually happened during the teams' meetings and made distinct their personal interpretations by putting them in parentheses. The minutes of the teams' meetings and the researcher's field notes were used to verify findings from the other sources.

All the data collected were analyzed using common principles in qualitative data analysis such as data reduction, data display, and conclusion drawing (Miles & Huberman, 1994; Thomas, 2006). Data were cleaned up, reduced, and transformed to a common format. Qualitative data analysis software (Atlas.ti7) was used to code the data based on broad themes originated from the research questions and the conceptual framework of the study. The coded texts were then sorted and analyzed thematically through the use of deductive and inductive analysis approaches. A number of strategies for generating meaning, for instance, counting sub-themes, identifying emergent patterns, grouping, and tabulation were used to build categories for the sub-themes and report them along with representative quotations (Table 5.3).

Table 5.3 *Deductive and inductive data analysis per research question*

Research Question	Type of Analysis	Example initial/emerging themes	
1. How do TCCD teams in TVE colleges redesign their curricula systematically and relationally, and what design outcomes did they achieve?	Deductive	Concept	Operationalization
		Analysis	assessing current curriculum status, collecting data from stakeholders, analyzing/synthesizing data, and identifying gaps
		Design	developing learning outcomes and developing academic blueprints (e.g., program/course outlines)
		Formative evaluation	assessing the design products and assessing the design procedures/alternatives
		Internal consistency	establishing coherence between the curriculum design phases, between the program elements, and between the institutional levels
		External consistency	Involving internal (college) and external (industry) stakeholders in the design process
	Inductive	Major themes	Sub-themes
		Challenges applying a systematic approach	e.g., stating the learning outcomes, integrating the analysis outputs into the design phase, and curriculum mapping
2. How do TVE department teachers value the TCCD process and outcomes as a strategy for maintaining curriculum consistency?	Inductive	Challenges applying a relational approach	e.g., involving the stakeholders as co-designers and finding subject matter experts
		Perceptions of the TCCD process	e.g., appreciation of learning gains, systematic working, and promotion of collaboration
		Perceptions of the TCCD outcomes	e.g., appreciation of the clarity and detail of the developed curriculum plans

5.4 Findings

5.4.1 The curriculum re-design undertaking and its outcomes

Findings are presented here by case (TCCD team), and within each case the findings are organized around what each team did during three major phases of the systematic design cycle (i.e., analysis, design [including the development of design products], and formative evaluation), and what challenges they encountered in each phase. Activities related to internal and external consistency conducted by the teams are highlighted throughout these design phases. Table 5.4 shows a summary of the four teams' collaborative curriculum design outcomes.

Table 5.4 *Teams' collaborative curriculum design outcomes*

	Dept. mission	Dept. goals	PLOs*	Program description	Course descriptions (N)	Curriculum map**
Team a	X	X	X	X	X (10)	X
Team b	X	X	X	X	X (13)	X
Team c	X	X	X	X	X (8)	X
Team d	X (draft)	X (draft)	-	-	-	-

Note. * PLOs= program learning outcomes, ** curriculum map: an outline aligning courses with the PLOs

Team a

This team formed a program advisory committee that they involved throughout the three curriculum design phases. The committee comprised a subject matter expert, industry representatives, and the department teachers. One industry representative participated in the regular design meetings and some other representatives were consulted by the team leader in informal settings outside the college. The team leader explained that he could not invite more industry representatives to attend the regular meetings as they were too busy. During the analysis phase, the team sought to assess the current status of the program and consider areas for improvements through involving various stakeholders (external consistency). The team involved the department alumni (a focus group) and students (a questionnaire), compared similar programs from other colleges, consulted the advisory committee, and reflected on the program improvement needs within the team. Besides a difficulty in synthesizing the analysis data, as noted by a teacher, the team leader reported two other challenges in this phase. In his words,

The most difficult part was to get information and guidelines from the college about our program, for example, the maximum number of credit hours [for the program and individual courses] and the goals set by the college for our program. There were brief brochures but with different information. Another difficulty was reaching industry representatives. They did not respond to us, I think the conditions [a political turmoil] are not favorable.

For the design phase, the team, through several rounds of drafting, developed the department mission, goals, program learning outcomes (PLOs), program description (including a new program outline with courses added and deleted), and brief descriptions of ten courses. When re-positioning courses, it was observed that the team went back and forth between the course learning outcomes, ensuring their alignment with the program outline and PLOs (internal consistency). The development of the PLOs accurately and comprehensively and mapping the curriculum were hard tasks and time consuming as reported by the team teachers.

The formative evaluation of the designed artifacts was conducted by the team itself and the advisory committee that attended most of the team's weekly meetings (internal and external consistency). The team leader was not, however, quite satisfied with the feedback of the advisory committee as they, he explained, had little experience in structuring and describing *academic* programs.

Team b

In the analysis phase, the team involved various stakeholders with the purpose of integrating their feedback into the newly designed program (external consistency). The team interviewed some department teachers, surveyed a sample of the department students and alumni, and conducted visits to repair departments of major automotive agencies in the city to get their input on the skills expected of the graduates of this program. The team also explored similar academic programs offered in colleges in other countries to learn from the way the 'formal curriculum' was written. Unlike team *a*, this team could not find industry representatives willing to take part in their regular design meetings as they were, according to the team leader, busy and not *extrinsically* motivated to be involved in curriculum design projects. Major obstacles in the analysis phase, as reported by the team, included the lack of time to conduct this phase more comprehensively and a difficulty in developing and analyzing interviews and questionnaires, as they did not have knowledge about these aspects according to one teacher.

For the design phase, the team collaborated to develop the department mission statement, department goals, PLOs, the program new title, the program description document, and detailed course descriptions for 13 courses, modifying their contents, stating their learning outcomes, and incorporating a course roster. Besides time constraints, the team found these design artifacts along with the task of linking courses to the PLOs (internal consistency) a great challenge. One teacher explained that it was their first time to write these aspects of the curriculum, *"As you saw, our initial phrasing of the program learning outcomes was like a list of topics"*. The team leader also pointed out, *"it [developing the PLOs] was time consuming, took 3 to 4 weeks. We did not expect that and we did not have any previous experience in such matters"*.

For formative evaluation, the team explained that they evaluated the design products such as the PLOs and course descriptions within the team and by some academics from the department who have a higher academic degree (internal and external consistency). In the words of the team leader,

When we do something we evaluate it. For example, in the analysis phase, we developed a questionnaire for the employers but then we got a suggestion from Dr. Alshami [a pseudonym] to use an interview. Also we asked some people like the Dean (being a teacher in our department) about the questionnaire, whether it was covering the curriculum aspects or not.

However, the team leader noted that it was a hard task to find people willing to spend enough time assessing their design products carefully and adequately, and that the ones they consulted did not make detailed and comprehensive evaluation of their work.

Team c

This team, in the analysis phase, involved a limited number of target employers (an interview), department students (a focus group and a questionnaire), and few department teachers to get their suggestions for improving and restructuring the study program (external consistency). The team members, during their regular meetings, also reflected on the needed program improvements based on their experience. In assessing the current status

of the program, the team encountered several challenges including uncooperative department teachers, a difficulty involving more industry representatives (due to the team's lack of time and the scarcity of subject matter experts in their field), and a difficulty synthesizing the analysis data in a way that was informative for the design phase (internal consistency) as the team leader noted.

In the design phase, making use of similar programs from other colleges and the data from the analysis phase, the team developed the department mission, goals, the PLOs, the program description, and eight brief course descriptions. The design phase also included the renaming and repositioning of some courses and mapping of the overall curriculum (internal consistency). Besides a difficulty in stating the PLOs comprehensively, conflicts of opinions in this phase appeared to be a major challenge for this team. In the words of one teacher,

We did not have a shared vision. We came from different academic backgrounds and experiences, and everyone thought her ideas were more appropriate. We did not agree on the content of courses and the phrasing of learning outcomes. For example, the team leader was insisting on including a course that I do not think we need it in the program.

For formative evaluation, the team reported that they evaluated each other's work during the regular meetings, asked some friends from other institutions, and consulted the project coaches (internal and external consistency). However, the team leader pointed out that they could not find subject matter experts with *academic* expertise who could evaluate their curriculum work, and that those they knew from industry lacked such expertise.

Team d

This team was the least productive and, in fact, quit early in the project due to time pressure and departmental problems such as a lack of teachers, which resulted in work overload on the current department teachers including the team members. The team did not hold regular meetings during the project except for very few informal sessions (mostly in pairs) because of conflicting teaching schedules and work pressure. Unlike the other teams, this team did not conduct analysis activities except for exploring similar programs. Based on reviewing similar programs and the team's perceptions of the department curriculum problems, the final design products were drafts for the department mission, goals, new student admission criteria, and a modified program outline in which they added, deleted and merged some courses. The team leader pointed out that there was no time for seeking experts' feedback (i.e., formative evaluation) on these curricular products. One teacher explained, however, that they (the team teachers) wanted to work like the other teams but the team leader was too busy to coordinate and facilitate this curriculum design project. Overall, unlike the other teams, this team could not achieve the project goals.

Professional support during the re-design undertaking

The training and the guidebook received by all participating teams, prior to the actual program redesign undertaking, were of great help as reported by the participants. However, the challenges encountered by the teams pertaining to the application of a systematic approach necessitated, *with varying degrees*, the intervention of the coaches. These challenges were expected considering the participants' initial lack of hands-on systematic design

experience. The coaches provided both reactive and proactive guidance. The reactive feedback addressed the participants' queries about technical design aspects such as stating learning outcomes accurately and mapping the whole curriculum (all teams), whereas the proactive interventions included keeping the teams on a systematic track (teams *b* and *c*), reminding the teams of deadlines and important design tasks such as conducting formative evaluation of the designed artifacts (teams *b* and *c*), resolving teamwork conflicts (team *c*), and providing advice on, for example, paying more attention to the analysis phase as the teams initially approached this phase with a simplistic approach (all teams).

5.4.2 Teachers' perceptions of TCCD process and outcomes

The findings here captured the participants' reactions to the TCCD experience including the support received before and during the program re-design endeavor. Since team *d* dropped out early in the project, findings are reported here based on data collected from teams *a*, *b*, and *c*.

Team a

Team *a* members appreciated both the learning about and the application of a systematic approach during the TCCD experience. The team saw a great potential for TCCD as a strategy for continuous curriculum renewal. One teacher explained that they previously had a superficial view in the department about curriculum design, interpreting it as choosing course syllabi to be covered by the course teacher while now they became aware of how collaborative and systematic this process should be. Another teacher appreciated how, *"the training has established new concepts and perspectives which helped the team members in designing the department curriculum professionally and systematically"*. The team leader also valued how the support received helped them,

work systematically, I mean, how to approach curriculum design in phases (analysis, design, development, etc.), and that each phase has a number of activities, steps, and concepts. For example, the process of describing a course, we used to do it in a traditional brief way, but now we take into account all the aspects of the curriculum.

The team leader pointed out that the TCCD undertaking raised his team's awareness not only about the importance of collaborative curriculum design within the department, but also about the need to extend such collaboration to include other stakeholders such as the college management, subject matter experts, and industry. Other aspects of the TCCD experience that the team liked included learning from colleagues and from the experts who attended their design meetings, stimulated spirit of collaboration, and the sense of clarity they developed about the whole curriculum.

Regarding the team's perceptions of the outcomes of the collaborative curriculum design, the team members unanimously appreciated their improved formal curriculum from lists of topics and software to detailed plans for the overall program and the individual courses. The team leader appreciated that they now have a better detailed and documented curriculum, and that the department would now look more professional. In the words of one teacher,

In the past, the department did not have a vision or goals. The curriculum documents developed now would facilitate the teacher work. Now things are clear for both the teachers and the students. Previously, courses were given to the teachers without specific guidelines, which made them deliver the courses the way they liked.

The team also seemed to have developed a better confidence in establishing their 'formal curriculum'. In the words of one teacher, *"I used to believe that course descriptions could be attained from other college websites offering similar programs. But now I believe that our department can make course descriptions better than those available online which do not have learning outcomes"*.

Team b

Like team *a*, team *b* highly valued the TCCD experience and the outcomes they achieved. Reflecting on their previous individual and ad hoc curriculum design practices, they all believed in the potential of TCCD as an effective strategy for systematic program renewal. They also explained that the TCCD undertaking changed their beliefs about curriculum and curriculum design. As one teacher explained,

'Previously, the curriculum was a book we followed, and curriculum design was just writing the course syllabi, and that is it. But now, I believe that the academic course should have learning outcomes that we should achieve. I learned about the design phases, beginning with the analysis phase, how to collect data, how to make a questionnaire, visiting industries. We also learned that we go step by step and do formative evaluation.'

Reaching out to industry was also an aspect appreciated by this team. One teacher explained that the TCCD experience afforded them the opportunity to conduct industrial visits and hence know more about the new trends in the market and the employers' expectations of the program graduates. The team leader was surprised to know that the employers interviewed expected more vocational knowledge and better English skills than the practical vocational skills, arguing that they would further train the graduates on their up-to-date equipment and systems that the college did not have. The team also appreciated how TCCD enhanced their learning about curriculum planning and promoted collaboration between the team members and other departments with which they shared common courses. The team leader also noted that TCCD fostered teacher commitment to the curriculum work as they had to show up for the team regular design meetings. This strategy, he elaborated, signaled to the teachers the importance of collaborative curriculum planning and the need to spare time to work on the department curriculum. Verifying the team leader's remark, a teacher reported,

I liked working as a team and having assigned tasks to work on. We felt alert that we had to achieve these tasks within the deadline. The project [TCCD] was successful; it has a clear vision, and it has a great potential to improve things.

Regarding the TCCD outcomes, the team highly valued their curricular products. They explained that their systematic design helped them develop detailed plans for their core courses, which would improve the clarity of the curriculum and help in teacher evaluation. One teacher remarked, *"Now we have a detailed and documented curriculum. So teachers will get clear descriptions of the courses they will teach. I believe this way of working [TCCD] should happen every year to encourage teachers to review the department curriculum"*.

Team c

Except for challenges arising from conflicts between the team leader and the teachers about managing the design undertaking and deciding on the curriculum new content, the team members felt positive about the systematic design endeavor as there were not such design activities in the department before. One teacher remarked, *“We worked systematically on restructuring our program for the first time. It was so great, and we must implement it”*. The team leader appreciated how the TCCD experience supported them in designing their program systematically. In her words,

[TCCD] showed us how to develop the curriculum. Curriculum design for us was just about deleting or adding a course in a random way without guidelines or principles. We learned about the broad concept of curriculum and how to approach curriculum design systematically . . . based on data collected from the students and the labor market’.

Like the other teams, team *c* stressed that TCCD should be an annual activity for its potential in promoting curriculum collaboration in the department and in providing professional development opportunities for teachers such as learning about working systematically, planning courses, and updating teachers’ subject matter knowledge.

Regarding the TCCD outcomes, team *c* appreciated the clarity and detail of their re-designed curriculum. The team leader considered the redesigned program and courses a huge step compared with the previous version of the department formal curriculum. She explained that the department teachers would now get clearer course descriptions, and that the department students would now have a better picture about the program outcomes they would have mastered upon graduation. In the words of one teacher, *“The thing I most appreciate is ending up with a product, which is the program specifications document, and learning how to work systematically”*. Another teacher explained that the systematic development of these academic plans would show the efforts exerted and would function as a reference for future program and course updating.

5.5 Conclusions and Discussion

This study attempted to describe the potential of teacher collaborative curriculum design as a strategy for maintaining the consistency of TVET programs. The study investigated how four teams from four academic departments worked on improving the internal and external consistency of their programs through applying a systematic and relational approach, and how they perceived the TCCD process and its outcomes. Table 5.5 summarizes the teams’ efforts pertaining to curriculum internal and external consistency.

Table 5.5 Activities related to establishment of curriculum internal and external consistency

	Internal consistency	External consistency
Team a	<ul style="list-style-type: none"> - Linked the analysis phase results to the design and development phases - Linked courses to the PLOs - Repositioned some courses for a better fit 	<ul style="list-style-type: none"> - Involved external stakeholders throughout the design process (e.g., the advisory committee) - Involved the whole department through inviting them to some design meetings
Team b	<ul style="list-style-type: none"> - Linked the analysis phase results to the design and development phases - Linked courses to the PLOs - Developed the learning outcomes of courses based on the established PLOs 	<ul style="list-style-type: none"> - Integrated external stakeholders' inputs into the program design (mainly during the analysis phase) - Consulted some department teachers
Team c	<ul style="list-style-type: none"> - Linked the analysis phase results to the design and development phases - Linked courses to the PLOs - Repositioned some courses for a better fit 	<ul style="list-style-type: none"> - Integrated stakeholders' inputs into the program design (mainly during the analysis phase) - Consulted few department teachers

In their efforts to improve the program external consistency through applying a relational approach, the findings clearly suggest that the TCCD teams find reaching and involving external stakeholders (e.g., prospective employers and subject matter experts) harder than involving internal stakeholders (e.g., students and department teachers) as the first do not see any return on investment by being involved in curriculum design projects at TVET institutions (European Training Foundation & World Bank, 2004). Only one team (team *a*) could involve external stakeholders as 'co-designers' throughout the design process, embodying the core concept of the 'relational approach' (Kessels, 1999; Kessels & Plomp, 1999; Visscher-Voerman & Gustafson, 2004), whereas the other teams involved the external stakeholders as design informants. This difficulty of establishing external consistency seems to be a natural consequence of the lack of formal coordination between TVET institutions and industry/businesses regarding curriculum development in developing contexts (Akomaning et al., 2011; cf. Bakah et al., 2012a).

Although less challenging in terms of feasibility, attending to curriculum internal consistency through applying a systematic approach was time- and effort-demanding process. This approach appeared to be a novel and complex change for the departments compared with the previous individual and content-based curriculum design practices whereby the curriculum was basically imported from various resources and customized by the course teacher based on what was intuitively believed to be of relevance to the students (Albashiry et al., 2015; Punia, 2001). This explains why the TCCD teams struggled with this approach and why there was a need for coaching and just-in-time support (Handelzalts, 2009; Huizinga, Handelzalts, Nieveen, & Voogt, 2014), especially at the beginning of the design undertaking. Another challenge in establishing the curriculum internal consistency lies in the absence of performance standards/frameworks for programs offered by community colleges in the country, being a relatively new form of TVET. Thus, the TCCD teams were missing a benchmark to which they could align their programs in matters such

as the allocation of program/course credit hours and the balance between general education courses and vocational courses.

Despite the challenges the teams encountered in applying a systematic and relational approach to improve the internal and external consistency of their programs, the participants highly valued the TCCD experience and unanimously believed that TCCD had great potential as an effective strategy for systematic program renewal. In congruence with many studies (e.g., Bakah et al., 2012b; George & Lubben, 2002; Nihuka & Voogt, 2012; Voogt et al., 2011), the findings of this study clearly indicate that teachers' involvement in collaborative curriculum design can result in several gains. First, not only can TCCD enhance teachers' learning about systematic curriculum planning and subject matter knowledge, but it can also change their beliefs about curriculum and curriculum design towards more systematic and relational approaches. Second, teachers develop a sense of clarity and a holistic view of the department curriculum, which probably stems from design tasks primarily associated with establishing internal consistency. Third, TCCD can greatly foster teachers' collaboration and commitment to the department curriculum work.

The findings also suggest that the way TCCD teams perform, the products they develop, and the support they need all vary based on various variables (Handelzalts, 2009; Huizinga et al., 2015). In this study, two main variables were identified. First, the unique departmental context of each team (e.g., academic workload, flexibility of scheduling, and cooperation of department teachers) affected the performance of each team (Bakah et al., 2012b; Crow & Pounder, 2000) and resulted in one team quitting the TCCD endeavour. Second, the leadership qualities of the team leader (e.g., his/her commitment, development of a shared vision, and ability to solve teamwork conflicts) also played a significant role in facilitating the team work and achieving the goals set (Crow & Pounder, 2000).

Overall, despite the novelty and difficulty of applying a systematic and relational approach by TVET department teachers in developing contexts, TCCD holds great potential as an efficient strategy for sustaining the consistency of the TVET curriculum and, hence, minimizing the current gap between the curriculum outcomes and the expectations of the stakeholders. The reported TCCD resultant gains should, however, be understood in light of 1- the multiple support forms (e.g., training, coaching, and exemplary materials) that the TCCD teams received before and during the design undertaking, and 2- the systematic and relational procedures followed during the design process. Moreover, the reported improvements in the internal and external consistency of the curricula are based mainly on the teachers' perceptions, posing a limitation to this study. Other stakeholders such as students and prospective employers should have also assessed the consistency of the re-designed programs. This was not, however, possible because the TCCD teams could not finish the re-design of the whole programs and could not adequately involve these external stakeholders in evaluation activities due to time and contextual constraints.

CHAPTER 6 - CONCLUSIONS & REFLECTIONS

This concluding chapter starts with recapitulation of the research presented in this dissertation followed by a summary of findings of the four sub-studies. Based on the findings of these sub-studies, an overall conclusion is presented next. Afterward, reflections on the research methodology and research outcomes, including an articulation of the design principles emanating from this research, are discussed. The chapter concludes with recommendations for practice and future research.

6.1 Research Recap

TVET institutions in developing countries are mandated to maintain and enhance the quality and relevance of their educational programs in accordance with the needs of the community and industry. It is the academic departments of these institutions that are usually expected to review and update the TVET curricula. However, the low professional capacity of TVET academic departments to lead systematic and collaborative curriculum renewals is a commonly reported challenge. Academics working in these institutions are mostly professional in their technical majors; they do not usually receive pre-service education or training on curriculum development and pedagogy. Thus, curriculum design practices handled by teachers and HoDs are unsystematic, individual, and intuitive, resulting in TVET curricula of low quality and relevance to the expectations of concerned stakeholders.

This study is based on the premise that in-service professional development of HoDs and teachers geared towards HoDs' curriculum leadership and teacher collaborative curriculum design (TCCD) holds great promise for the professionalization of curriculum design practices in TVET academic departments, which can eventually lead to better curriculum consistency. The context of this study is a TVET community college in Yemen which encounters curriculum development challenges similar to those found in other TVET institutions in developing contexts. Adopting educational design research as an overall methodological approach, the study reported in this dissertation was of an interventionist nature holding a dual purpose. The study aimed to improve the status quo of the educational problem at hand, and at the same time produce theoretical understanding of how the intervention played out in a real-world setting along with postulating design principles for similar interventions to be conducted in similar contexts. The overall research question guiding this study was: *How can professional development support help TVET college middle managers and teachers improve their curriculum design practices towards enhanced curriculum consistency?* This question was answered by conducting four sub-studies. A summary of each sub-study findings is presented next.

6.2 Summary of Findings

6.2.1 First sub-study: Context and needs analysis

The purpose of this sub-study (Chapter 2) was to describe how the middle management and teachers of a TVET community college approached curriculum design both as a blueprint and as a process along with identifying the curriculum design challenges and needs of the college academic departments. By answering the overall question: *“How do middle managers and teachers in TVET community colleges approach curriculum design, and what challenges and needs do they have in designing their curricula?”*, this initial sub-study sought to develop tentative goals and design specifications for a potential intervention based on the study findings and the literature review conducted. From a curriculum design perspective, this sub-study analyzed curriculum documents and the perceptions of various concerned stakeholders (students, alumni, teachers, middle managers, senior managers, and government officials) regarding the current curriculum design practices, challenges, and needs.

The findings showed that there was a major problem with the college 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 of each department. Involvement of external stakeholders in programs’ renewals following their inception was absent. The major curriculum design challenges identified, which also mirrored the type of support needed by the study departments, included the limited financial resources of the community college, the instability of the academic departments due to the high rate of HoDs’ and teachers’ mobility and attrition, the lack of curriculum design expertise of HoDs and teachers, and the lack of senior management support for curriculum renewal activities. It was concluded that the identified curriculum design practices were not conducive to internally and externally consistent curricula.

6.2.2 Second sub-study: First professional development arrangement (PDA-1)

The purpose of this study was to describe the design, relevance, and effects of a professional development arrangement (PDA-1) for the college middle managers (HoDs and Heads of Division) as an initial intervention so that they could lead better curriculum design practices than those identified in the exploratory study. This sub-study addressed the overall question: *“What impact can a professional development arrangement have on improving curriculum leadership of college middle managers?”*. The PDA-1 aimed to first improve the middle managers’ learning about systematic and relational curriculum design and second support them in developing curriculum design policies such that they could practice effective curriculum leadership in improving the current ad hoc curriculum design practices. The PDA-1 included activities such as training workshops, curriculum policy development, and course redesign. The effects of the PDA-1 were measured at the first three levels of Kirkpatrick’s model (D.

Kirkpatrick & J. Kirkpatrick, 2006): 1- the participants' reactions to the PDA-1 relevance, 2- their learning, and 3- their post-intervention curriculum leadership practices.

At the first level, the middle managers highly appreciated the design and the content of the PDA-1 and found it relative and supportive to their work as curriculum leaders. At the second level, the findings indicated the middle managers' substantial learning about systematic and collaborative curriculum design, which included a change in their perceptions of 'curriculum' and 'curriculum design'. The middle managers' beliefs shifted towards a broader perspective of 'curriculum design' compared with their previous notions which 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 development efforts were minimal and characterized by individual initiatives due to several challenges. These included the lack of senior management support, unfavorable work conditions, the high rate of middle managers' attrition, and the inadequate curriculum design expertise of department teachers. It was concluded that for middle managers to lead systematic and collaborative curriculum design activities, training workshops and policy development were not adequate per se. Department teachers also needed similar professional support so that they could effectively work with their HoDs on designated curriculum design tasks. Organizational support was also critically needed for HoDs to lead effective curriculum design renewals. Besides the provision of incentives and encouragement, the senior management would have to establish clear and shared expectations of teachers, HoDs, and Heads of Division regarding curriculum design responsibilities.

6.2.3 Third sub-study: Second professional development arrangement (PDA-2)

This sub-study reported on the second round of the intervention (PDA-2). The intervention in its second round was informed by the findings from the previous sub-study along with insights from literature. It turned out that HoDs still needed further training; one that would help them perform curriculum leadership tasks: setting and sharing curricular goals, establishing structures for curriculum work, building curriculum development teams, and coordinating the various curriculum development activities. The teachers also needed to learn the basics of systematic and relational curriculum design. Therefore, the PDA-2 comprised further training for the HoDs (on curriculum leadership) and initial training for the teachers (on basics of curriculum design), followed by a curriculum development project led by the HoDs. The curriculum development project aimed to give the HoDs and teachers the opportunity to demonstrate the new desired curriculum design and curriculum leadership practices and at the same time improve the internal and external consistency of their formal curricula. Table 6.1 shows the practical outcomes of the study intervention and how they evolved over the two rounds of the intervention.

Table 6.1 *Evolution and outcomes of the study intervention*

Outcomes	Intervention	
	First round (PDA-1)	Second round (PDA-2)
HoDs' learning	Basics of systematic and relational curriculum design	Curriculum leadership tasks
Teachers' learning	Not applicable	Basics of systematic and relational curriculum design
Formal curriculum	<ul style="list-style-type: none"> - Internal curriculum development policies (including templates, forms, and procedures) - Course descriptions 	<ul style="list-style-type: none"> - Department missions - Department goals - Program descriptions (including curriculum maps) - Course descriptions
Curriculum design practices	<ul style="list-style-type: none"> - Individual: HoDs and teachers worked individually on re-describing some courses 	<ul style="list-style-type: none"> - Systematic - Relational - Collaborative

Conceptualizing curriculum leadership into 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 of 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 realize the significance of their role as curriculum leaders compared with the administrative role that they used to largely focus on. The findings also indicated that the ways the HoDs enacted the curriculum leadership tasks and the challenges they encountered varied based on several factors such as the HoD's commitment, management and leadership skills, knowledge about curriculum design, and the department context.

The conclusion drawn was that the support the HoDs needed and the challenges they encountered in exercising purposeful curriculum leadership suggested their need for three professional competencies: curriculum design, management, and leadership. Besides professional support to foster these three competencies, the HoDs would also need organizational support such as follow-up from senior management, monetary incentives, and time release.

6.2.4 Fourth sub-study: Teacher collaborative curriculum design

Based on the PDA-2, reported in the third sub-study, the fourth sub-study explored the potential of teacher collaborative curriculum design (TCCD) as an institution-based strategy for maintaining the consistency of TVET curricula. This sub-study addressed the overall question: *"What is the potential of teacher collaborative curriculum design for improving the external and internal consistency of TVET curricula?"*. The study focused on describing how four curriculum design teams from four academic departments re-designed their academic

programs systematically and relationally in order to improve their internal and external consistency. The study also explored the participants' perceptions of the TCCD process and its outcomes. With varying degrees, all the design teams except for one team (due to departmental problems) managed to redesign their academic programs systematically and relationally.

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 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 developing data collection instruments, analyzing the data collected, phrasing of the program and course learning outcomes, and conducting formative evaluation. This necessitated the provision of coaching and just-in-time support during the design process.

Applying a relational approach was, however, 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 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). Further, finding subject matter experts with academic expertise to have their take on academic aspects was another reported challenge. 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 to have now better clarity and consistency because of their applying systematic and relational design procedures. The teachers also reported that this undertaking helped them learn new skills, develop a sense of clarity and a holistic view of the department curriculum, and foster their collaboration and commitment to the department curriculum work. It was concluded that professionally supported TCCD teams, applying a systematic and relational approach, was a promising curriculum design strategy for enhancing the consistency of TVET curricula. However, for this strategy to be effective and sustainable, continuing professional and organizational support is needed.

6.3 Overall Conclusions

The study reported in this dissertation set out to answer the overall question: *How can professional development support help TVET college middle managers and teachers improve their curriculum design practices towards enhanced curriculum consistency?* Following are the overall conclusions drawn from this study.

(1)- The findings of this study show that professionally supported middle managers and teachers demonstrate improved curriculum design and leadership practices that contribute to the improvement of the curriculum internal and external consistency. The programs redesigned in this study had better clarity, more detail, and improved coherence between various components such as department goals, program learning outcomes, and course learning outcomes (internal consistency). In addition, the resultant curricular artefacts (e.g., new/modified courses, updated content, and program learning outcomes) were perceived by teachers and HoDs to be relevant to the needs and expectations of industry, students, and department teachers (external consistency). Similar positive outcomes concerning curriculum consistency have been reported in similar TVET contexts as a result of professionally supported teachers' collaborative curriculum design efforts (Akomaning et al., 2011; Bakah et al., 2012b).

(2)- The reported improved curriculum design practices and curriculum consistency in this study can be attributed to several factors. First, the multiple forms of the 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 applying 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 such as workload decrease for participants, provision of 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 applying 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 of the intervention (Guskey, 2000, 2003) and the piecemeal evolvement 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.

(3)- The study findings also indicate that although professionally supported HoDs and teachers at TVET institutions further realize 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).

(4)- Further, the study concludes that in-service professional development support for HoDs with focus on curriculum leadership has a positive impact, with 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, positive work conditions and organizational 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) are critically needed by HoDs to exercise effective curriculum leadership in practice (cf. D. Kirkpatrick & J. Kirkpatrick, 2006).

6.4 Reflections on Research Methodology

6.4.1 Educational design research

The reason behind using educational design research (EDR) for this study was not 'jumping on the bandwagon'; it was rather the prospects that this methodology brings to both practice and theory (Barab & Squire, 2004). At the practice level, this research methodology allows the researcher to play multiple roles so as to address the educational problem at hand more comprehensively (The Design-Based Research Collective, 2003). Playing multiple roles by the researcher in this study (e.g., observer, trainer, coordinator, facilitator, coach, problem solver, and researcher) was perceived as an advantage of this type of research. It allowed for a deep understanding of the context and participants and helped make well-informed decisions (McKenney et al., 2006). It was the contextual complications in this study that dictated the emergence of certain roles. For example, the role of coach was a second thought after observing the TCCD teams struggling with applying a systematic approach.

Another practical aspect of EDR lies in the iterative nature of the intervention designed/enacted within this type of research. In many EDR studies (e.g., Akomaning, 2012; Bakah, 2011; Nihuka, 2011), the same intervention is iterated over multiple cycles of design/enactment with different groups of people or at a larger scale each time. The iteration of the intervention in this EDR study has, however, occurred at two different organizational levels (i.e., the middle management and the teachers) with a different structure of the intervention in each round in order to accomplish best possible outcomes. This form of intervention maturation (attending to different organizational levels) was dictated by the nature of the problem at hand (improving the sub-standard curriculum design practices towards better curriculum consistency) and by the complications of the study context. This attachment to the educational context contributes to the ecological validity of the educational interventions developed within the EDR methodology (McKenney & Reeves, 2012). While the context sensitivity of EDR renders the intervention more viable for the context where it is to be used (i.e., Sanaá Community College in the case of the current study), emergent theoretical understandings from this type of research along with the resultant design principles can be instructive for interventions to be conducted in similar contexts, that is, TVET institutions in developing countries (McKenney et al., 2006; Van den Akker, 1999).

From a theoretical perspective, EDR helps clarify how highly contextual and complex theoretical concepts can be in reality. For example, in this study 'curriculum leadership' has

been conceptualized into four major curriculum leadership tasks based on the literature reviewed prior to the enactment of the intervention (PDA-2). These four tasks (1- establishing and sharing curriculum purpose, 2- providing a structure and support for curriculum work, 3- promoting curriculum collaboration, and 4- coordinating and facilitating the various and complex curriculum development activities) were the core of the training provided to the HoDs before they led the curriculum re-design undertaking. However, the ways the HoDs enacted these tasks revealed the kind of complexities curriculum leadership brings to this context such as the HoDs' need for further professional development and organizational support so as to effectively implement the four curriculum leadership tasks. The further needed support centered on three specific curriculum leadership competencies (curriculum design, management, and leadership) along with organizational and contextual considerations. These theoretical understandings emanating from the field application of the concept of curriculum leadership resulted in the development of a 'curriculum leadership competency model' for HoDs working in TVET colleges in developing countries (see section 6.5.3). This is a contextualized demonstration of the symbiotic relationship between educational theory and educational practice— a defining feature of EDR (McKenney & Reeves, 2012).

6.4.2 Case study approach

The case study approach nicely fits studies conducted within EDR as such an approach helps attain an in-depth understanding of how a contemporary phenomenon functions in a certain way in a real-life setting with little control over the events (Yin, 2003). This study was conducted in a single educational institution. Conducting a single case study is justified when the case represents a typical one (Yin, 2003). The case in this study is Sanaá Community College which is assumed to share typical financial, administrative, and academic structures like other public community colleges in the country. This implies that the lessons learned from this study are very likely to be informative for other community colleges in the country and probably in other developing countries sharing a similar TVET context.

Focusing on a specific context has its advantages. Among the advantages observed in this study is that such an approach saves and directs the researcher's efforts towards a deep understanding of the problem and participants, and of the interaction between the intervention and this particular context. Therefore, when time and logistics are an issue for a research project, conducting an EDR study in a single context would be a wise decision as EDR is time- and effort-demanding (Anderson & Shattuck, 2012). Another advantage lies in the spatial and social proximity between the researcher and the concerned stakeholders which was found to be crucial in this study. Such proximity warrants more communication opportunities between these two parties and, hence, minimizes potential misinterpretations of how the solution to the educational problem is to be developed and/or implemented.

Despite the advantages mentioned above, sometimes limitations to single case studies are expressed in literature. A limitation often mentioned pertains to the external validity of the findings and conclusions made, as these can be specific to the context where they emanate from. This limitation does not, however, apply to this study from a 'statistical

generalizability' perspective. Conducted within the EDR framework, the purpose of this single case study was to generate rich knowledge about an untapped research problem in a specific context (i.e., enhancing the curriculum consistency of TVET curricula through curriculum collaboration and leadership). Thus, the study sought to produce *transferable* 'design principles' that can be used in similar contexts – 'analytical generalizability' (cf. Yin, 2003). In Yin's words, "the single case can represent a significant contribution to knowledge and theory building. Such a study can even help to refocus future investigations in an entire field" (2003, p. 40).

To minimize potential bias and to improve the reliability and validity of this case study findings, a number of measures were administered (Barab & Squire, 2004; McKenney et al., 2006; Miles & Huberman, 1994; Shenton, 2004). First, the participants took part in the study on a voluntary basis and their feedback was confidential, thereby strengthening the credibility of their inputs. The written formal communication (via survey protocols and project correspondence) and the personal communication between the researcher and the participants promoted mutual trust and a friendly environment for participants to open up with the researcher. Second, the use of triangulation in each sub-study (i.e., applying different data collection methods) helped compensate the individual limitations of each method. Other forms of triangulation included the use of a mixed-method design and the use of both deductive and inductive analysis methods. Third, data analyses followed sound and systematic procedures, including an iterative coding process with intercoder reliability checks (Miles & Huberman, 1994; Thomas, 2006).

6.5 Reflections on Research Outcomes

6.5.1 Two explanations for status quo of TVET curricula

The context and needs analysis sub-study (Chapter 2), in congruence with literature from similar contexts (e.g., Akomaning, 2012; Bakah, 2011), suggests two major explanations for the status quo of curriculum design practices in TVET institutions in developing countries. First, governments in developing countries seem to overestimate the professional capacity of TVET institutions to maintain and enhance the quality and relevance of their educational programs (The European Training Foundation & World Bank, 2004). Curriculum design practices in TVET academic departments are often substandard, unsystematic, and uncondusive to internally and externally consistent curricula due to the inadequate curriculum design expertise of teachers and HoDs and the lack of leadership and management competencies of academic managers, notably HoDs (Gervendink Nijhuis et al., 2012). One interesting finding from the exploratory study (Chapter 2) was that this overestimation of professional capacity was also observed in TVET teachers. The majority of the teachers surveyed in that study believed that they had adequate curriculum design competency; however, after their participation in the professional development activities and the actual curriculum development undertaking, both the teachers and the HoDs pointed out that they previously had a superficial understanding of this academic activity.

The second explanation for the status quo of current curriculum design practices is probably a lack of awareness by governments' officials and senior management of TVET institutions of

the complexity of maintaining and enhancing the TVET educational programs. They also seem to underestimate the importance of providing pre- and in-service specialized training to those handling these vital academic processes, especially HoDs and teachers. Many of these officials seem to hold a simplistic view of curriculum development, associating the 'curriculum' mostly with the textbook/handout to be taught and misapprehending the many variables, components, and stakeholders linked with the design and implementation of the TVET curriculum. This appears, however, to be a universal phenomenon (Fullan, 2007; Heitink, 2012).

6.5.2 Challenges associated with the position of HoD

In most developing countries, HoDs are appointed by the Dean from within the department. The position of HoD is not financially independent with a higher pay scale. Therefore, such a position in TVET institutions does not seem to be either financially or professionally rewarding enough for department teachers to accept or opt for (Gervedink Nijhuis et al., 2012). HoDs, in such contexts, are oftentimes consumed by many administrative tasks such as coordinating student exams, reporting grades, following up on teachers' performance, solving students' problems, improvising solutions for urgent issues (e.g., the drop out of teachers in the middle of a semester and finding qualified teachers). Very little energy and peace of mind are left for HoDs to turn to curriculum development matters (cf. Marsh & Willis, 1999). Further, 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 leading position occupied by less qualified teachers (Akomanning, 2012; Gervedink Nijhuis et al., 2012). This is why the intervention in this study (see Chapters 3 & 4) took into consideration the establishment of an encouraging and supportive climate for the participating HoDs to work on a major curriculum renewal. The training provided and the incentive package offered (e.g., workload decrease and monetary incentives) were highly appreciated by the participating HoDs. This clearly implies that if HoDs are to lead genuine and tangible curriculum development efforts towards better curriculum consistency, both professional and organizational support needs to be provided by senior management.

6.5.3 Model for curriculum leadership competency of HoDs

In congruence with literature on academic leadership (e.g., Glatthorn et al., 2012; Marlow & Minehira, 1996; Sorenson et al., 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 a curriculum leadership competency, 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 effective curriculum design practices. These three competencies are graphically represented in Figure 6.1 as a curriculum leadership competency model for TVET HoDs in developing countries. This model can function as a general framework informing in-service professional development programs for HoDs in such a context.

The model pictures curriculum leadership competency as the integration of the three competency domains mentioned above. The curriculum design competency is needed to handle the technical curriculum development tasks and activities such as conducting needs analysis, involving curriculum stakeholders to ensure curriculum external consistency, conducting course evaluations, and mapping the whole curriculum. The 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. The leadership tasks include, for example, 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 (Fidler, 1997). Therefore, the curriculum leadership competency is by effect an integration of the three competencies.

Figure 6.1 Curriculum leadership competency model for Heads of Department

The model also highlights the importance of attending to the context (the outer dotted circle) where curriculum leadership is practiced. The dotted line of this circle indicates that the boundary of the curriculum leadership context is not sharp; it can refer to the department context, the college context, or even higher hierarchical levels. Supported by this study, the literature reviewed suggests that HoDs' curriculum leadership roles, tasks, and expectations seem to vary based on the curriculum development phase and contextual variables such as the institution type, academic discipline, department size, and work structure and culture (e.g., Aziz et al., 2005; Lattuca & Stark, 2009; Stark et al., 2002; Wiles, 2009). For example, the findings of this study (see Chapters 2 & 3) indicate that HoDs' curriculum leadership is influenced by personal and contextual factors such as the HoD's self-motivation and commitment, organizational structures (e.g., clarity of curriculum development expectations and procedures), teacher collaboration, and senior management support (e.g., follow-up,

time release, and incentives). Further, the context in this model implies that the priority and the amount of the professional support needed for each of the three competencies are determined by contextual considerations. In this study, for example, the priority was given to the development of the curriculum design competency of HoDs (first round of the intervention) and curriculum-related leadership competency (second round of the intervention). These two competencies were developed at a basic level as the participating HoDs were initially lacking them.

6.5.4 Teacher collaborative curriculum design

This study showed that professionally supported TCCD undertakings resulted in positive curriculum development and professional development outcomes. Besides the perceived improvements of the formal curricula in terms of quality and relevance, the TCCD undertaking helped the teachers learn about systematic curriculum planning, change their beliefs about curriculum design, develop a sense of clarity and a holistic view of the whole curriculum, and foster their collaboration on and commitment to the department curriculum.

The findings of this study justify the conclusion that *professionally supported* TCCD teams can function as an institution-based curriculum development strategy for ongoing professional development and curriculum renewals at TVET institutions in developing countries. It seems to be a financially and timely appropriate solution for the commonly reported stagnant curriculum development activities at these institutions as there would be less spending and dependence on external curriculum development support.

Based on the findings of the fourth sub-study (Chapter 5) which showed promising potentials for TCCD teams, this institution-based curriculum design strategy needs to be perceived as an organic academic activity for its dual outcomes – professional development and curriculum development (Handelzalts, 2009; George & Lubben, 2002; Nihuka & Voogt, 2012; Voogt et al., 2011). The great potential of TCCD as an ongoing curriculum development and professional development strategy stems from its being well-situated in sound theoretical perspectives such as those of educational change, adult learning, and situated learning. From an educational change perspective, TCCD seems to be well-aligned with several aspects of educational change such as moving towards teacher/school-based curriculum development, bridging curriculum gaps, involving teachers as curriculum makers, encouraging teacher collaboration, and promoting professional learning communities (Fullan, 2007; Hord, 2004; Marsh & Willis, 1999). From an adult learning perspective, the way teacher learning occurs in TCCD is consistent with main characteristics of adult learning such as learning what is relevant to adults' needs and context, relying on resources they already have in their learning, taking accountability for their learning, and learning what it is interesting and significant to them (Illeris, 2010). From a situated perspective, teachers in TCCD design plans and materials for their daily use, take into account the social context of the institution and the community, and share what they know and face with their colleagues (Putnam & Borko, 2000).

6.5.5 Internal and external curriculum consistency: Improvements and further support

In this study, despite the novelty and difficulty of applying a systematic and relational approach by the TCCD teams to enhance the internal and external consistency of their educational programs, most teams achieved tangible outcomes in this regard. Compared with the previous status of the formal curricula, these teams managed to better link certain components of the formal curriculum with each other such as the programs' learning outcomes, the courses' learning outcomes, content, and instructional methods. Moreover, the interconnectedness of the program courses was improved through curriculum mapping, and the newly developed student learning outcomes were aligned with the stakeholders' expectations. Attending to these curriculum consistency issues helped improve the consistency in perceptions among the department teachers regarding the department curriculum as a whole.

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 these teams could align elements such as program learning outcomes and program/course credit hours. Moreover, the teams still need ongoing professional support so as to further improve coherence among the curriculum components (e.g., goals, content, instructional approaches, and assessment) when the educational programs are developed with more detail, and among the curriculum representations (e.g., the planned, enacted, and attained curriculum). For external consistency, organizational support appears to be more critical for TCCD teams in TVET institutions. It was a challenging task for the TCCD teams in this study to approach businesses and industry on their own and to involve them as co-designers of their educational programs without previous official coordination by the institution.

6.5.6 Achievement of intervention goals

The study intervention in its two rounds (PDA-1 and PDA-2) succeeded in achieving its short-term goals of effecting both professional development and curriculum development outcomes (see Figures 1.2 & 1.3 in Chapter 1). The intervention helped the teachers and HoDs learn about curriculum design and curriculum leadership, develop curriculum policies, and apply systematic and relational curriculum design activities in re-designing their formal curricula with improved clarity, detail, and consistency. Although assessing the achievement of the intervention long-term goals (i.e., institutionally adopting systematic and relational curriculum design practices by academic departments) was beyond the scope of this study, the findings of this study reveal positive indicators. These include the HoDs' and teachers' positive reactions to the new curriculum design practices introduced and applied during the PDA-1 and PDA-2 and their motivation and willingness to continue these practices. Another indicator concerns the senior management's verbal encouragement and appreciation of the efforts exerted by the TCCD teams during the project.

However, the findings also indicate several potential threats to the realization and sustainability of the intervention long-term goals. One such threat concerns the inadequate concrete support provided by the senior management to the HoDs and teachers to work on curriculum renewals, such as encouragement, provision of monetary incentives, and follow up on their curriculum work (Ottevanger et al., 2010). Another consideration for realizing the long-term goals lies in bridging the expectations gap between the middle and senior management regarding curriculum development responsibilities and the support needed. Further, the high rate of teachers' and HoDs' attrition and mobility in such contexts due to unsupportive work conditions forms another threat to the sustainability of systematic and relational curriculum design practices (Akomanning, 2012; Gervedink Nijhuis et al., 2012; Ottevanger et al., 2010). For long-term goals of such projects to be realized, senior management of TVET institutions needs to play a proactive role rather than a reactive one concerning curriculum development. They need to promote TCCD in all college departments, encourage systematic and relational curriculum design practices, and hold regular meetings with HoDs and teachers to ensure that curricular expectations are collectively developed and shared (Wiles, 2009).

6.5.7 Design principles

A major theoretical output of EDR studies is the production of 'usable knowledge' or what is commonly known as 'design principles' (McKenney et al., 2006; Wang & Hannafin, 2005). These design principles are formulated as heuristics, rather than a prescriptive recipe, for practitioners or EDR researchers wishing to develop and implement a similar intervention in a similar context. Following Van den Akker's (1999) format for describing design principles, this study postulates that if practitioners/researchers want to design a '*professional development arrangement (PDA)*' for the purpose of '*professionalizing HoDs' and teachers' curriculum design practices towards enhanced curriculum consistency*' in the context of '*tertiary TVET in developing countries*', they are advised to consider the following substantive principles (intervention characteristics) and procedural principles (tasks and activities) for the prospective intervention. These design principles are based on the findings of this EDR study and supported by literature including other EDR studies.

Substantive design principles

- 1) *Intertwine professional development and curriculum development in a way that reflects the intended curriculum design practices.* In the first intervention round (Chapter 3), the professional development part was followed by policy development, and in the second round (Chapters 4 & 5) by actual re-development of the formal curriculum. This combination was highly valued by HoDs and teachers. It resulted in deeper understanding of the theoretical concepts introduced and well-informed curriculum design practices and artifacts. As Stenhouse (1975) puts it, "there can be no curriculum development without teacher development" (p. 110).
- 2) *Ensure that the content of the PDA develops conceptual understanding of curriculum leadership (for middle managers), the systematic-relational approach, and the broad definition of 'curriculum' along with its levels, and its representations.* Given the lack of pre-service training on curriculum design for HoDs and teachers, these content aspects need to

be an integral part of the PDA design (Glatthorn et al., 2012; cf. Marlow & Minehira, 1996; Wiles, 2009). Effective demonstration of these aspects is likely to challenge the commonly held narrow beliefs about 'curriculum' and 'curriculum design' (e.g., focus on content coverage and associating the curriculum solely to the textbook/handout, see Chapters 3, 4, & 5).

- 3) *Incorporate multiple forms of professional support, especially coaching and provision of exemplary materials and templates.* Provision of these forms of support was well-received by HoDs and teachers (Chapters 3, 4, & 5). They perceived these forms of professional support to be both time-savers, given their tight schedules, and scaffolds for effective learning (cf. Darling-Hammond et al., 2009; Huizinga et al., 2015, Van den Akker, 1988).
- 4) *Consider non-training solutions such as the provision of incentives and the development of internal curriculum development policies.* Besides training, the PDA needs to take into account the performance barriers preventing academic departments from applying systematic and relational curriculum design practices (D. Kirkpatrick & J. Kirkpatrick, 2006). Possible performance barriers include a lack of incentives for curriculum work, heavy workloads, and a lack of a shared vision between the curriculum stakeholders within the TVET institution regarding curriculum development (see Chapters 3 & 4). In other words, the intervention should be as *holistic and systemic* as possible (Guskey, 2000).
- 5) *Structure the PDA on phases, tasks, responsibilities, and deadlines, and ensure clarity of procedures.* While keeping flexibility in mind, the PDA activities need to be highly structured, well-facilitated, documented, and clearly communicated. The participants felt positive about the clarity and structure of the PDA in its two rounds (see Chapters 3, 4, & 5). A document describing the intervention goals, phases, tasks, participants, responsibilities, and deadlines is quite important. Verbal and written reminders during the project help keep the parties involved and on track.
- 6) *Incorporate teacher collaboration throughout the PDA.* HoDs and teachers appreciated the collegial discourse that emanated from collaboration opportunities provided during the training sessions (Chapter 3) and the curriculum re-design undertaking (Chapter 5). Teacher curricular collaboration is conducive to contextually relevant learning and curriculum development (Darling-Hammond & McLaughlin, 1995; Handelzalts, 2009; Guskey, 2003).
- 7) *Apply a success-oriented short-term goal strategy.* As the purpose of a prospective PDA is to eventually improve curriculum design practices, which tend to take a long time to be integrated into the academic system, the PDA should have both short-term and long-term goals against which the progress is to be evaluated (Guskey, 2000; Loucks-Horsley et al., 2010). Achieving short-term goals creates positive learning experiences, which constitutes great motivators for participants to make more investments of time, energy, and commitment in achieving long-term goals (cf. Fullan, 2007; cf. Merrill, 2002). HoDs and teachers had positive feelings about achieving the short-term goals of the PDA, i.e., learning about systematic-relational curriculum design and re-designing their formal curricula (Chapters 3 & 5).

Procedural design principles

- 1) *For a better understanding of the status quo of curriculum design practices at the TVET institution, design the initial context and needs analysis with reference to curriculum levels, components, and representations (cf. Van den Akker, 2003).* These frameworks proved to be useful in this study for exploring the problem at stake (Chapter 2).
- 2) *Involve concerned stakeholders in collaborative decision-making so as to achieve feasible design aspects of the PDA.* Based on the analysis of the findings and the literature review, decide with the concerned stakeholders on a *feasible* format for the PDA (e.g., time, structure, participants' roles and expectations, and tasks) and the design tasks to work on. As a result of considering this principle, no resistance to change by HoDs and teachers was observed in this study.
- 3) *Provide time release and monetary incentives in order to motivate HoDs and teachers to participate in the PDA activities.* HoDs and teachers at TVET institutions in developing countries usually have a low morale due to unsupportive work conditions and the low salaries they receive (Gervedink Nijhuis et al., 2012). Time release and monetary incentives were reported by HoDs and teachers in this study to be an important form of organizational support for them to participate in major curriculum design undertakings (Chapter 2), and these *motivators* were highly appreciated when they were provided (Chapters 3, 4, & 5).
- 4) *Emphasize the formulation of student learning outcomes in the development of the formal curriculum.* Focusing on the selection of the curriculum content during curriculum design and on the content coverage during curriculum implementation is a common practice in developing countries. HoDs and teachers need to be sensitized to the importance of developing the academic program and course learning outcomes and to the need of having them interconnected and aligned with the needs of the labor market (Finch & Crunkilton, 1999, see Chapter 5).
- 5) *Provide coaching and just-in-time support during the actual curriculum design tasks.* As found in this study, HoDs and teachers are likely to struggle with applying a systematic and relational approach due to its novelty (Chapter 5); therefore, follow-up and just-in-time support (e.g., coaching) would be critical for achieving the desired outcomes (Huizinga, 2014; Nihuka, 2011).
- 6) *Hold plenary sessions during the curriculum design undertaking to discuss progress and challenges.* These sessions bring TCCD teams together and provide an opportunity for evaluating the work progress and discussing the encountered challenges (Chapter 5). Such sessions indirectly constitute a pressure on participants to achieve the goals of the intervention within the time framework. Support and pressure are needed for optimal results (Fullan, 2007; Guskey, 2002).
- 7) *Provide HoDs and teachers with further professional and logistic support on the analysis and formative evaluation phases of the curriculum design process.* The little attention usually paid to these phases by TCCD teams can, as this study showed, be attributed to the need for more training on these aspects (cf. Huizinga, 2014) or to the fact that these two activities demand more time and effort (Chapter 5), which is hard to realize by HoDs and teachers during a busy semester without appropriate logistic support.

- 8) *Offer tailored support for the TCCD teams during the design undertaking (Chapter 5).* Individuals and teams will need personalized support during the actual design tasks due to the participants' and teams' varying competencies (Chapter 5, Huizinga, 2014).

6.6 Recommendations

Based on the findings of this study along with the literature reviewed, several recommendations for practice can be made. The recommendations below are presented at three levels: governments in developing countries (especially in Yemen), senior management of TVET institutions, and middle management of these institutions.

6.6.1 Recommendations for governments

- Establish formal liaisons between industry and community colleges regarding curriculum development. This is essential to help TCCD teams within TVET institutions reach and involve external stakeholders in curriculum development matters and hence maintain the external consistency of their educational programs.
- Urge government boards that are in charge of TVET institutions to play an active role in supporting these institutions on curriculum development matters. The support can take the form of, for example, developing a national accreditation agency for the educational programs offered by these colleges and providing curriculum development consultation and expertise.
- Reconsider the pay scale of academics at TVET institutions so as to attract qualified teachers, especially those who are on temporary contracts (adjunct teachers). Teachers with expertise and sound subject matter knowledge are an important input for robust and valid curriculum development. Attractive pay scales would also decrease the high rate of HoDs' and teachers' mobility and attrition, resulting in more stable academic departments, which is necessary for sustainable curriculum development activities.

6.6.2 Recommendations for senior management of TVET institutions

- Ensure the availability of institution-wide curriculum policies that regulate curriculum design practices. These policies need to reflect the systematic and relational aspects of curriculum development. Further, follow up on the implementation of these policies and provide the support needed to realize effective implementation.
- Provide an attractive incentive package for HoDs and teachers to stay in position and lead effective curriculum design practices. Monetary incentives, when possible, and workload decrease are probably the most motivating strategies for TVET academics to spare time for purposeful and robust curriculum work in developing countries.
- Establish/activate curriculum development units in these institutions and hire curriculum design experts for these units so that they guide and support the curriculum development efforts of academic departments.
- Play a proactive role regarding curriculum development through, for example, encouraging innovative curriculum design practices, seeking accreditation for the college programs, communicating clear curriculum development expectations for academics, developing strategic plans for curriculum renewals, and holding regular meetings with

the middle management and teachers to discuss curriculum matters and maintain a shared vision.

6.6.3 Recommendations for middle management of TVET institutions

- Promote collaborative curriculum design in the department and ensure a favourable climate for such a strategy. Scheduling teaching assignments in a way that allows for free times for teachers to meet and decreasing their teaching loads so that they can work on curriculum design tasks are some forms of support to be provided.
- Search for funds so as to provide professional development opportunities for the department teachers. These opportunities motivate teachers and create a sense of belonging to the department and its cause.
- Give curriculum development more space and a better structure in the annual work of the academic department. Coordinate and facilitate the various curriculum development activities such as program annual reviews, content update, and student program/course evaluation.
- Establish a professional network with industry and businesses so as to have their inputs for better curriculum external consistency.

6.6.4 Recommendations for future research

This research shed light on how a PDA helped HoDs and teachers of TVET institutions in developing countries apply systematic and relational curriculum design practices so as to improve the internal and external consistency of their technical and vocational curricula. The research empirically documented the effects of the professional support on these important stakeholders' beliefs, learning, and curriculum design practices. It also showed the challenges encountered and the support needed during their implementation of a systematic and relational approach. Furthermore, the findings and reflections on how HoDs enacted curriculum leadership and the support they needed/would still need suggested a model for curriculum leadership competency of HoDs working in TVET institutions in developing countries.

Further (educational design) research is still needed to describe and explain how TVET academic departments in such a context can play an active role in improving the consistency of the TVET curriculum. The following are some suggested directions for future research in this arena.

- Research involving more TVET institutions within a country or across developing countries is needed to verify the findings of this study and provide more insights on improving the professional capacity of these institutions to maintain and enhance the quality and relevance of TVET curricula.
- Research may investigate how industrial liaison units, when available, can support TCCD teams in applying a relational approach geared towards improved external curriculum consistency.
- Given the complexity of the TVET curriculum and the need for competent academic managers (especially HoDs) to maintain and enhance its quality and relevance,

curriculum leadership of HoDs is an important area awaiting further research. This study highlighted three competencies comprising HoDs' curriculum leadership (See Figure 6.1). Research is needed to identify the specific knowledge and skills within each competency of the three in order to elaborate the HoDs' curriculum leadership model developed in this study. Such an expanded model can then be used as a reference framework by TVET institutions in developing countries for purposes such as HoDs' appraisal, HoDs' professional development, and HoD job description.

- In contexts where the formal curriculum of TVET educational programs is well-established (e.g., clear learning outcomes, sound pedagogical approaches and methods, and appropriate structure), researchers may investigate the 'enacted' and the 'attained' curriculum. Gaps between curriculum representations can affect both the internal and external consistency of TVET curricula.
- Sustainability of curriculum design practices after receiving relevant professional support seems to be a challenge in developing contexts. As hindering factors are adequately articulated in literature, future research needs to focus on identifying successful strategies for realizing sustainable curriculum design practices in a TEVT context. Educational design research is a promising research approach to gain such knowledge.

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NEDERLANDSE SAMENVATTING

Inleiding

In antwoord op een groeiende vraag van het bedrijfsleven naar gekwalificeerde professionals op middenkader niveau, besteden ontwikkelingslanden steeds meer aandacht aan het technisch beroepsonderwijs. Dit type onderwijs wordt verondersteld de armoede te doen verminderen en ondersteuning te bieden aan de economische groei door de arbeidsmarkt te voorzien van gekwalificeerde professionals en ondernemers. Onderzoek laat echter zien dat er een kloof is tussen de curricula die worden aangeboden door de instellingen voor technisch beroepsonderwijs en de behoeften van de arbeidsmarkt en daarmee wordt de realisatie van de bovengenoemde doelen van deze vorm van onderwijs belemmerd. Het curriculum van het technisch beroepsonderwijs is meestal van lage kwaliteit, is vaak aanbod gestuurd en is niet in staat om gelijke tred houden met de technologische ontwikkelingen en de sociaaleconomische veranderingen..

De kloof tussen technisch beroepsonderwijs en bedrijfsleven is toe te schrijven aan de verschillende uitdagingen waarmee de instellingen in ontwikkelingslanden geconfronteerd worden, zoals de gebrekkige aanpak van curriculumontwikkelingen, omdat competenties op het terrein van curriculumontwerp en curriculumleiderschap van deze managers en docenten niet toereikend zijn. Daarnaast zijn er zeer beperkte mogelijkheden voor professionele ontwikkeling met betrekking tot curriculumontwikkeling. Het doel van dit onderzoek was te bepalen hoe managers en docenten in het technisch beroepsonderwijs professioneel ondersteund kunnen worden en daarmee hun curriculumontwerp-competenties kunnen verbeteren en de kwaliteit en de relevantie van hun opleidingen versterken. De context van deze studie is een community college voor beroepsonderwijs in Jemen.

Overschatting van de capaciteit van managers en docenten om de kwaliteit en de relevantie van de opleidingen te handhaven belooft, gezien het gebrek aan professionele voorbereiding voor een dergelijke lastige opleidingstaak, weinig goeds voor het bereiken van de doelen van instellingen voor technisch beroepsonderwijs. Het doel van dit onderzoek was tweeledig. Vanuit een ontwerp-perspectief, is het doel om afdelingsmanagers professioneel te ondersteunen om effectief curriculumleiderschap te beoefenen door het leidinggeven aan curriculumontwikkeling en door docenten te stimuleren gezamenlijk curricula te ontwerpen. Professionalisering te richten op twee niveaus (afdelingsmanagers en docenten) is van grote betekenis voor de verbetering van de relevantie en de effectiviteit van curriculumontwikkeling. Vanuit wetenschappelijk oogpunt is het doel het ontwerp en de impact van de professionaliseringstrategie te beschrijven en contextuele beperkingen te

identificeren die de kracht van de strategie kunnen verminderen. Bovendien wordt onderzocht hoe de professionaliseringstrategie uitpakt in de praktijk en wat de effecten ervan zijn.

Onderzoeksvragen

Gezien de duidelijke nadruk in de literatuur over het aanbieden van professionele ondersteuning aan afdelingsmanagers en docenten om curriculumontwikkelingstaken uit te voeren, beschrijft dit onderzoek hoe deze belangrijke curriculum stakeholders, indien professioneel ondersteund, in staat zijn curriculumontwikkeling te verbeteren en daarmee curriculumconsistentie te bereiken. De algemene onderzoeksvraag waarop het onderzoek gericht was luidde:

Hoe kan ondersteuning van de professionele ontwikkeling van afdelingsmanagers en docenten hun curriculumontwerppraktijken verbeteren met het oog op verbeterde curriculumconsistentie?

Deze algemene vraag werd beantwoord door het uitvoeren van vier deelonderzoeken die elk respectievelijk gericht was op één van de volgende onderzoeksvragen.

- 1- Hoe benaderen afdelingsmanagers en docenten in een community college voor technisch beroepsonderwijs het ontwerpen van curricula, en welke uitdagingen en behoeften hebben ze in het ontwerpen van hun curricula?
- 2- Welke impact heeft een arrangement voor professionele ontwikkeling op het verbeteren van leiding aan curriculumontwikkeling door afdelingsmanagers?
- 3- Hoe nemen afdelingsmanagers hun leidinggevende taken in curriculumontwikkeling waar en hoe voeren zij die taken uit in curriculum ontwikkelingsprojecten?
- 4- Wat is de effectiviteit van het gezamenlijk ontwerpen van curricula door docenten in het verbeteren van de externe en interne consistentie van curricula voor technisch beroepsonderwijs?

Methodologie

Gegeven de naturalistische, sociale en complexe aspecten van het onderzoek tezamen met het tweeledig doel, ontwerpen en onderzoeken, voor het oplossen van een opleidingsprobleem en het bijdragen aan wetenschappelijke kennis, werd ontwerpgericht onderwijsonderzoek (McKenney & Reeves, 2012) gehanteerd als onderzoeksmethodologie. Ontwerpgericht onderzoek richt zich op het iteratief en systematisch aanpakken van een realistisch onderwijsprobleem door middel van het ontwikkelen van een interventie waarbij de onderzoeker(s) en de relevante stakeholders samenwerken. Deze onderzoekaankpak wordt uitgevoerd in verschillende fasen met als doel om de context goed te begrijpen en de beoogde uitkomsten te verbeteren. Dit onderzoek is uitgevoerd in deelstudies, waarbij een case study benadering met verschillende curriculumontwerpen werd gebruikt om te beschrijven wat de effecten van de interventie in de praktijk waren.

Belangrijkste bevindingen

Studie 1: Context- en behoefteanalyse

Het doel van dit deelonderzoek was om te beschrijven hoe managers en docenten van een community college het ontwerpen van curricula benaderden, als blauwdruk en als ontwerpproces, en welke curriculum ontwerpuitdagingen en behoeften van de afdelingen kunnen worden geïdentificeerd. Met de beantwoording van de onderzoeksvraag bleek dat er een groot probleem was met het formele curriculum (curriculumontwerp als blauwdruk). Leerresultaten, programma- en vakbeschrijvingen en intern beleid aangaande curriculumontwerpprojecten ontbraken of waren slecht gedefinieerd. Curriculumontwerp als een proces bleek niet systematisch, maar vooral ad hoc, intuïtief, individueel, en gecentreerd rond het wijzigen van individuele cursussen, waardoor het overzicht van het gehele programma van elke afdeling verloren ging. Betrokkenheid van externe stakeholders, van belang vanuit een relationeel ontwerp perspectief, bleek na een vernieuwing van een programma niet meer te bestaan. De belangrijkste ontwerpuitdagingen die werden geïdentificeerd waren de beperkte financiële middelen van het community college, de instabiliteit van de afdelingen toe te schrijven aan het hoge percentage mobiliteit en natuurlijk verloop van afdelingsmanagers en docenten, en het ontbreken van ondersteuning van het senior management bij curriculum vernieuwingsactiviteiten. Er werd geconcludeerd dat de geïdentificeerde curriculum ontwerppraktijken niet bevorderlijk waren voor intern en extern consistente curricula en dat ondersteuning gewenst was gericht op het ontwikkelen van curriculumontwerpprojecten bij afdelingsmanagers en docenten.

Studie 2: Eerste professionaliseringsprogramma

Op basis van de bevindingen van de vorige studie, werd de professionele ontwikkeling van de afdelingsmanagers op het gebied van curriculumontwikkeling als belangrijk bestempeld door alle stakeholders. Deze professionele ontwikkeling zou kunnen leiden tot verbeterde curriculumontwerppraktijken in vergelijking met wat in de verkennende studie was geconstateerd. Het doel van deze studie was daarom het ontwerp, de relevantie en de uitkomsten van een professioneel ontwikkelingsarrangement als eerste interventie (PDA-1) te beschrijven, gericht op het middenkader.

Met behulp van Kirkpatrick's model voor het evalueren van de impact van programma's voor professionele ontwikkeling, wezen de resultaten uit dat op de eerste twee niveaus van het model de effecten van de PDA-1 geheel positief waren en op het derde niveau slechts op onderdelen positief waren. Op het eerste reactie-niveau bleek het middenkader het ontwerp en de inhoud van het programma voor professionele ontwikkeling, dat wil zeggen de verschillende vormen van de professionele ondersteuning zeer te waarderen. Ze vonden de PDA-1 relevant en ondersteunend voor hun werk als curriculumleiders. Op het tweede niveau (het leren door de deelnemers), bleek uit de resultaten dat het middenkader substantieel geleerd had over de systematische en gezamenlijke wijze van ontwerpen van curricula, waaruit ook een verandering in hun perceptie van de waarde van een curriculum en van het ontwerpen van curricula kon worden opgemaakt. Ook werd een versterkt vertrouwen in de belangrijkste systematische en gezamenlijke curriculum

ontwerpactiviteiten gemeld. Op het derde niveau (de curriculumleiderschap praktijken), bleek het middenkader weinig initiatief te tonen als gevolg van verschillende andere uitdagingen en hun inspanningen op het terrein van curriculumontwikkeling bleken minimaal. Deze uitdagingen omvatten het gebrek aan senior managementondersteuning, ongunstige werkomstandigheden, de hoge mate van afstroom van het middenkader, en de gebrekkige curriculumontwerpexpertise van de docenten.

Studie 3: Tweede professionaliseringsprogramma

Deze deelstudie was gericht op de tweede ronde van de interventie (PDA-2). Op basis van de uitkomsten van de PDA-1, werd PDA-2 uitgebreid met uit verdere training voor de afdelingshoofden (op het terrein van curriculumleiderschap) en met de eerste training voor de docenten (op het terrein van curriculumontwerpen), gevolgd door een curriculumontwikkelingsproject geleid door de afdelingshoofden om daarmee de professionele ontwikkeling af te stemmen op de beoogde curriculumontwerppraktijken. Curriculumleiderschap werd opgedeeld in vier belangrijke taken, en deze studie richtte zich op de vraag hoe de deelnemende afdelingshoofden deze taken na het ontvangen van relevante training en ondersteuning (bijvoorbeeld door middel van coaching, hand-outs, sjablonen en voorbeeldmaterialen) waarnemen en uitvoeren. In deze deelstudie werden ook percepties van de ondersteuning die zij ontvingen en de uitdagingen die zij tegenkwamen tijdens het leiden van het curriculumontwikkelingsproject. Uit de bevindingen bleek dat de afdelingshoofden de relevantie en het nut van de verschillende vormen van het aanbieden van ondersteuning en de leidinggevende ervaring waardeerden, waardoor ze het belang beseften van hun rol als curriculumleiders vergeleken met de administratieve rol waar ze zich vroeger vooral op richtten. De bevindingen wezen ook uit dat de wijzen waarop de afdelingshoofden de curriculumleiderschapstaken uitvoerden en de uitdagingen die ze tegenkwamen varieerden op basis van verschillende factoren, zoals de betrokkenheid van de afdelingshoofden, de aanwezige management- en leiderschapsvaardigheden, de kennis over het ontwerpen van curricula, en de context van de afdeling.

Studie 4: Gezamenlijk curriculum ontwerpen door docenten

Na het verbeteren van het curriculumleiderschap van afdelingshoofden als een strategie voor het verbeteren van de huidige curriculum ontwerppraktijken, concentreerde deze deelstudie zich op het onderzoeken van de mogelijkheden van het gezamenlijk ontwerpen van curricula door docenten als een instelling gebaseerde strategie voor het behoud van de consistentie van de curricula van het community college. Deze multiple-case study was gericht op het beschrijven hoe vier curriculumontwerpteams uit vier afdelingen hun opleidingen systematisch en relationeel opnieuw ontwierpen teneinde de interne en externe consistentie ervan te verbeteren. Deze studie onderzocht ook de perceptie van het gezamenlijk ontwerpproces en de resultaten van de deelnemers.

Ondanks de uitdagingen in de toepassing van een systematische aanpak (bijvoorbeeld het uitvoeren van behoefteanalyse en een formatieve evaluatie) en een relationele benadering (bijvoorbeeld, het betrekken van externe stakeholders als co-ontwerpers van de nieuwe curricula), rapporteerden de docenten positief over hun ervaring met de ontwerpteams en

over de resultaten ervan. De teams waren van mening dat hun formele curricula nu duidelijker en consistentier zijn in vergelijking met de situatie voorafgaand aan PDA-1 en PDA-2, vanwege het benutten van systematische en relationele ontwerpprocedures. De docenten meldden dat deze activiteiten hen geholpen hebben nieuwe vaardigheden te verwerven, een holistische kijk op het curriculum van hun afdeling te ontwikkelen en hun samenwerking en de inzet voor het werken aan het curriculum te bevorderen. Er werd geconcludeerd dat het professioneel ondersteunen van ontwerpteams en het hanteren van een systematische en relationele aanpak, een veelbelovende curriculumontwerpstrategie was om de consistentie van curricula voor technisch beroepsonderwijs te verbeteren. Echter, voortzetting van de professionele en organisatorische ondersteuning is gewenst, zodat de strategie effectief en duurzaam kan worden.

Conclusie

De resultaten van dit onderzoek laten zien dat het professioneel ondersteunen van opleidingsmanagers en docenten tot verbeterde curriculumontwerp- en leiderschapspraktijken leiden die bijdragen aan de verbetering van de interne en externe consistentie van het curriculum. De vernieuwde curricula hadden waren gedetailleerder beschreven en hadden een betere samenhang tussen de verschillende onderdelen, zoals de afdelingsdoelstellingen en de beoogde leerresultaten (interne consistentie). Daarnaast werden de resulterende curriculaire artefacten (bijv. nieuwe/aangepaste cursussen, bijgewerkte inhoud en leeruitkomsten) door de docenten en afdelingshoofden gezien als relevant om aan de behoeften en verwachtingen van het bedrijfsleven, van de studenten, en van de docenten (externe consistentie) te voldoen.

Uit de studie blijkt ook dat, hoewel professioneel ondersteunde afdelingshoofden en docenten in technisch beroepsonderwijs het belang beseffen van het betrekken van externe stakeholders om de externe curriculumconsistentie te verbeteren, de uiteindelijke realisatie ervan in de praktijk niet altijd haalbaar was. Het ontbreken van formele professionele netwerken en contacten met het bedrijfsleven vormt in veel ontwikkelingslanden een grote uitdaging voor curriculumontwerpteams om potentiële werkgevers en vertegenwoordigers van het bedrijfsleven te bereiken en te betrekken in het (her)ontwerp van hun opleidingen.

De in dit onderzoek gemelde verbeterde curriculumontwerppraktijken en de gerealiseerde curriculumconsistentie kunnen worden toegeschreven aan verschillende factoren. Ten eerste, de verschillende vormen van de ondersteuning van de professionele ontwikkeling die de docenten en afdelingshoofden kregen, speelden een belangrijke rol in hun training over het toepassen van een systematische en relationele benadering van curriculumontwerp. Ten tweede, bij de ondersteuning van de professionele ontwikkeling in de twee rondes (PDA-1 en PDA-2) werd rekening gehouden met contextuele beperkingen, door te zorgen voor tijdelijke werkdrukddaling voor de deelnemers, het verstrekken van (kleine) beloningen, en het flexibel plannen van de trainingen en andere activiteiten.

Op grond van de studie kan worden geconcludeerd dat ondersteuning van professionele ontwikkeling voor afdelingshoofden met nadruk op curriculumleiderschap een positief

effect heeft, zij het voor de individuele afdelingshoofden in verschillende mate, op het leren en het vermogen om effectief curriculumontwerppraktijken te leiden. Zulke ondersteuning van professionele ontwikkeling zorgt ervoor dat afdelingshoofden meer waardering hebben voor en alert zijn op hun rol als curriculumleiders en zich meer bewust zijn van hoe een dergelijke rol verder gaat dan het administratieve domein. De bevindingen suggereren dat voor afdelingshoofden meer op maat gesneden professionele ondersteuning gewenst is in drie professionele competenties (curriculumontwerp, management en leiderschap), zodat aan de individuele professionele ontwikkelingsbehoeften van afdelingshoofden kan worden voldaan. De bevindingen geven ook aan dat, naast het verstrekken van adequate professionele ondersteuning, positieve werkomstandigheden en organisatorische ondersteuning nodig zijn voor afdelingshoofden om effectief curriculumleiderschap in de praktijk uit te oefenen. Een synthese van deze bevindingen heeft geleid tot de ontwikkeling van een curriculumleiderschap competentiemodel voor afdelingshoofden in het technisch beroepsonderwijs in ontwikkelingslanden.

APPENDICES

Appendix A: Instruments Used for Chapter 2

Appendix A-1: Interview Scheme for the Executive Council of Community Colleges (ECCC)

Demographic information:

Name:

Position:

Years in the position:

1	How much autonomy do community colleges have regarding curriculum development in terms of: - adding or deleting courses within educational programs - updating educational programs and courses - evaluating educational programs and courses (and taking actions accordingly)
2	Are there any accreditation requirements or curriculum frameworks/standards for accrediting educational programs offered by community colleges? How does it work?
3	Are there any policies or bylaws that regulate curriculum development activities at community colleges? Are they being followed?
4	Does the ECCC evaluate the educational programs of community colleges regularly? When, what, why, and how?
5	What curriculum improvements does the ECCC perceive are important for community colleges to work on (e.g., updating of program learning outcomes, allocation of credit hours, teaching methods, etc.). How can these improvements be achieved?
6	What kind of support does the ECCC/Ministry of TVET provide to community colleges pertaining to curriculum development ?
7	What kind of support will the ECCC provide to SCC when a curriculum development project is internally initiated?

Appendix A-2: Interview Scheme for SCC Senior Management

Demographic information:

Name:

Position:

Years in the position:

1	To what extent does the college have autonomy in designing its curricula, that is, adding or deleting core courses, updating contents, evaluating the study programs/courses, etc.? - Are there policies or mandates that describe this autonomy?
2	What are the procedures or the policies that the college use to manage and organize curriculum development processes and activities?
3	How much autonomy do the academic departments have regarding curriculum development (e.g., adding/deleting courses, updating program content, etc.)? Are there curriculum policies regulating such academic activities?
4	What kind of support does the senior management provide to the study departments to facilitate their curriculum development activities?
5	What kind of challenges are facing the college in supporting curriculum design activities such as (re-)designing programs/courses in a systematic way, evaluating them, updating them, etc.?
6	<p>What do you think needs to be improved <u>urgently</u> about the way the curricula are designed in the college? (please, check all that apply.)</p> <p>☐ No need for improvements; the way the curriculum is designed is fine.</p> <p>☐ Re-designing some aspects of the study programs (e.g., modifying or specifying the program outcomes, adding/deleting courses, etc.)</p> <p>☐ Re-designing some courses to modify certain aspects in their design such as objectives, credit hours, content (knowledge and skills), assessment methods, learning activities, etc.</p> <p>☐ Establishing plans and policies within the college departments that regulate curriculum design activities such as designing, reviewing, updating, and improving the department program/courses</p> <p>☐ Better documentation for curriculum-related documents at the program, course, and policies level</p> <p>☐ Other, please describe:</p>
7	<p>How do you think curriculum design practices in the college can be improved? (please, check all that apply).</p> <p>☐ through working in teacher design teams to design certain aspects of the department curriculum</p> <p>☐ through working with a curriculum expert to improve curriculum designing</p> <p>☐ through training teachers to be curriculum designers</p> <p>☐ Other:</p>
8	Any comments about any of the issues raised in this discussion?

Appendix A-3: Interview Scheme for SCC Middle Management

Demographic information:

Name:

Department:

Years in the position:

Scientific degree:

1	How much autonomy does your department have in designing its study program/courses (i.e., deleting or adding courses, linking them to each other, updating courses, evaluating courses, etc.) - Are there policies or mandates that describe this autonomy? - Are the teachers aware of them? - Is there a shared vision regarding these policies?
2	Who designs the core courses in the department (i.e., determining objectives, content, skills to be learned, assessment method, learning activities, etc.)? Is curriculum design an individual or collective task?
3A	To what extent is the study program internally consistent (i.e., courses are linked to each other and aligned with the overall program learning outcomes) - Are there policies or procedures in place that ensure the realization of this type of consistency? - Are the teachers aware of them? - Is there a shared vision regarding these policies?
3B	To what extent is the study program externally consistent (i.e., responding to the labor market needs and the concerned stakeholders' expectations) - Are there policies or procedures in place that ensure the realization of this type of consistency? - Are the teachers aware of them? - Is there a shared vision regarding these policies?
4	To what extent does the (re-)design of the study program/courses follow a systematic approach (i.e., analysis, design, development, implementation, and evaluation)?
5	Is there a shared vision (manifested in some policies) that regulate this issue about following a systematic approach?
6	- To what extent are teachers involved in designing or making decisions about the department curriculum (e.g., adding/deleting courses, (re-)designing them, updating and evaluating them, etc.) - Are teachers aware of how the curriculum is functioning (e.g., how courses are related, built on each other, aligned with the program outcomes, etc.)?
7	What are the challenges facing the department in managing curriculum design processes and activities? (multiple choice) - lack of curriculum design expertise - lack of senior management support (e.g., training, incentives, time provision) - lack of teachers' collaboration - other:
8	What kind of support do you receive from the senior management (i.e., the dean, his assistants, and the college board) regarding curriculum design processes and activities?

9	<p>What do you think needs to be improved <i>urgently</i> about the way the curricula are designed in your department? (please, check all that apply.)</p> <p>☐ No need for improvements; the way the curriculum is designed is fine.</p> <p>☐ Re-designing some aspects of the study program (e.g., modifying or specifying the program outcomes, modifying some core courses, adding/deleting courses, etc.)</p> <p>☐ Re-designing some courses to modify certain aspects in their design such as objectives, credit hours, content (knowledge and skills), assessment methods, learning activities, etc.</p> <p>☐ Establishing plans and policies within the department that regulate curriculum design activities such as designing, reviewing, updating, and improving the department program/courses</p> <p>☐ Documenting the department curriculum more effectively and in more detail (program documents, course descriptions, and policies that regulate CD activities)</p> <p>☐ Other, please describe:</p>
10	<p>How do you think curriculum design practices in the college can be improved? (please, check all that apply).</p> <p>☐ through working in teacher design teams to plan certain aspects of the department curriculum</p> <p>☐ through working with a curriculum expert to improve curriculum designing</p> <p>☐ through training teachers to be curriculum designers</p> <p>☐ Other:</p>
11	<p>Would you support and facilitate a long curriculum development project that aims at improving the way the curriculum is designed in your department along with supporting teachers' professional development in curriculum design?</p>
12	<p>What kind of professional support, in terms of content, do you think teachers need so that they can develop a better curriculum in their department?</p> <p>- pedagogy</p> <p>- Curriculum design skills</p> <p>- Subject matter</p> <p>- Industrial visits</p> <p>- other:</p>
13	<p>What kind of organizational support and conditions are necessary to encourage and then facilitate teachers' involvement in program/course design activities?</p>
14	<p>Any comments about any of the issues raised in this discussion?</p>

Appendix A-4: Teacher Questionnaire

Dear teacher:

There is going to be a project at our college that aims at improving the way the curriculum is designed and improving the teachers' design competencies as well, if both were found to be needed. The first phase in this project is exploring how curriculum designing at the program and course level in the college departments is taking place. In order to get a clear picture of this issue, I kindly request you to respond to the attached questionnaire. Issues such as availability of written program/course outcomes, coherence among core courses, the way courses are designed and documented, and the role of teachers in designing the department curriculum will be investigated.

The purpose of this questionnaire is Not to evaluate the curriculum design practices of the study departments for the sake of evaluation; the main purpose of this questionnaire is to find out: 1- which practices and areas in curriculum design need improvements and 2- whether teachers need professional development in designing their department curriculum. To better understand the questionnaire items, please consider the following definitions:

- ☐ The term 'courses' refers to the core/technical courses, therefore, excluding the general education courses such as English and Math – unless otherwise stated.
- ☐ The term 'curriculum/program/course design' refers to the ongoing process of making a detailed plan (either new or modifying an existing one) for student learning during a specific period of time. This includes, for example, setting learning goals, choosing target knowledge and skills, developing the learning activities, making assessment tools, evaluating courses, and so forth.

Please answer each of the following items carefully and objectively. Note that: SD= strongly disagree, D= disagree, N= not sure/neutral, A= agree, SA= strongly agree, and NA= Not applicable). Please, return the questionnaire to Mr. Sulaiman in the academic affairs office no later than April 15.

You do not need to write your name, and no individuals will be identified or traced from this, i.e., confidentiality and anonymity are assured. If you wish to discuss any aspects of the questionnaire, please do not hesitate to contact me at 713452432 or at nabeelizm78@hotmail.com

Thank you, in advance, for taking the time to complete this questionnaire which will approximately take 20 minutes.

Kind regards,

Nabeel M Albashiry

Demographic Information

a- Teaching experience at SCC (in years):

b- Gender: ☐ Male

☐ Female

c- Your department:

d- Job status: ☐ Employed

☐ Contractor

e- Academic degree: ☐ High diploma ☐ Bachelor ☐ Master ☐ PhD

1- Do you design the course/s you teach to some extent (i.e., you consider the learning needs of your students, determine the learning objectives, choose and develop the learning activities, choose and develop the assessment methods and criteria, evaluate the course/s after you teach it/them, etc.).

☐ Yes (please, continue with question 2)

☐ No (please, go to question 3)

2- To what extent do you agree with the following statements about following a systematic process in designing the courses you usually teach? Put a (✓) under the proper column. Please, consider the following distinction between ‘designing’ and ‘developing’:

- **Designing a course:** planning the course through considering the students’ learning needs, determining its objectives, global structure, kind of content (target knowledge and skills), kind of learning activities, and kind of assessment, etc.
- **Developing a course:** creating concrete lessons/tasks and assessment tools, preparing the course readings, tools, or software, creating the course description, writing the course roster (a plan for the sequence of course activities, lessons, and assessments), etc.

		SD	D	N	A	SA
	Before I design a course:					
1	I consider the kind of students I’ll teach (e.g., their number, prior knowledge, academic abilities, etc.).					
2	I consider the resources/facilities available in the college (e.g., labs, tools, hardware/ software, etc.).					
3	I consider how the course is related to the other courses or the whole program (e.g., its number of credits, its prerequisites, its level (introductory/advanced), etc.).					
4	I consider what knowledge or skills the students are supposed to learn.					
5	I consider the scope of the course (i.e., the breadth/depth of its content).					
6	I check my assumptions about the previous points (e.g., credits, depth/breadth of the course, available resources and facilities, etc.) with the head of the department or my colleagues so that I can start my design of the course based on a clear idea.					
	Before I develop a course:					
7	I write down the general/specific goals of this course.					
8	I determine what learning tasks/activities the students will be engaged in during the course.					
9	I sequence the learning tasks/activities over the course period.					
10	I make an initial plan of how to assess the students’ performance in the course.					
11	I check my plan about the course goals, sequence of activities, or kind of assessment with the head of the department or a colleague.					
	Before I teach a course:					
12	I prepare the course readings (either prepare a handout or choose a textbook), tools, or the software.					
13	I prepare the student learning tasks/lessons (e.g., task description, worksheets, summaries of lectures, etc.).					
14	I write down a course description (i.e., a document explaining its rationale, objectives, content, learning activities, assessment methods and criteria, etc.).					
15	I write a detailed course roster (a plan for the sequence of course activities, lessons, and assessments).					
16	I develop the assessment tools (e.g., quizzes, rubrics, etc.) and criteria.					
17	I check what I have I developed or prepared for the course (i.e., course readings, learning tasks, course descriptions and roster, and assessment tools).					
	After I finish teaching a course:					
18	I evaluate some of its aspects such as content, teaching method, assessment, and so forth to improve it for the next time.					
Any comments about the way/process you follow in designing the courses you teach: 						

3- To what extent do you agree with the following statements about your actual involvement in designing your department program/courses?

		SD	D	N	A	SA
1	I am involved when changes are made to the study program (e.g., adding or deleting courses, adding new outcomes, linking courses with each other or with the department, etc.).					
2	I am involved when changes are made to the core courses in the department (e.g., determining their goals, updating content, etc.).					
3	The head of the department or my colleagues contribute to the designing of the courses I teach (i.e., providing comments, making changes, etc.).					
4	I am informed by my department (e.g., through the program's/courses' documents or via the department regular meetings) about how the whole program functions (e.g., its overall outcomes, its structure, etc.).					
5	I am informed by my department (e.g., through the program's/courses' documents or via the department regular meetings) about how the department core courses are linked with each other or with the program learning outcomes.					
6	I participate in forming a shared vision regarding the management of curriculum design activities in my department (i.e., taking part in forming policies that regulate curriculum design activities).					
7	I participate in forming a shared vision regarding the educational philosophy in the department regarding teaching and assessment methods.					
Any other comments: 						

4- To what extent do you agree with the following statements about the actual curriculum design practices in your department?

		SD	D	N	A	SA
1	The program/courses in my department are (re)designed in a <u>systematic way</u> (i.e., a- a cycle of analyzing the learning needs and context, b- determining course objectives, structure, type of learning activities and assessment, c- creating the learning tasks and assessment tools, d-teaching the course, e- evaluating the course, and f- improving the course based on the evaluation).					
2	The program/courses in my department are <u>regularly updated</u> to keep pace with the changing needs of the labor market or the new advances in the subject domain.					
3	The program/courses in my department are <u>well-documented</u> in the department office (i.e., there is a program document and course description for each core course).					
4	Course documents (e.g., course descriptions) <u>spell out clearly the course-related issues</u> such as rationale, objectives, content, learning activities, assessment methods and criteria, etc.					
5	The <u>students are informed</u> by their teachers in a written form (e.g., a course description) at the beginning of the term about the course-related issues mentioned in the previous point.					
6	The program/courses are evaluated for their <u>consistency with the labor market needs</u> .					
7	The courses are evaluated for their <u>consistency with each other or with the program overall outcomes</u> (i.e., objectives of courses are aligned with the program outcomes).					
8	The program/courses in my department are <u>evaluated to improve the quality</u> (e.g., better content, better learning activities, better structure, etc.).					
9	Before a core course is taught , it has <u>to be approved by the head of the department or a committee</u> (i.e., to assess its content, learning activities, relevance to the program outcomes, etc.).					
10	<u>New teachers are given a detailed description</u> of how the courses are designed by the department (e.g., rationale, objectives, content, learning activities, assessment methods, etc.) before they teach them.					
11	The student study load of courses (e.g., assignments, activities, readings, etc.) within one term is usually considered by the department.					
12	The learning tasks/activities within a course (e.g., projects, presentations, assignments, etc.) are determined <u>by the department</u> before the course is taught.					
13	During the department meetings <u>teachers discuss issues related to improving the study program/courses</u> (e.g., linking courses, improving content, learning objectives, assessment, instructional approaches, etc.).					
14	There is a shared vision in the department regarding curriculum design activities.					
15	There is a shared vision in the department regarding the educational philosophy (e.g., pedagogical practices and assessment methods).					
16	Curriculum design activities in the department are mainly based on teachers' collective efforts.					
17	Curriculum design activities are informed by real data such as students' feedback and labor market identified needs.					

5- Based on the definition of curriculum design as an ongoing systematic planning of student learning through, for example, determining the outcomes, developing the learning activities, and developing assessment tools, etc., to what extent do you agree with the following statements?

		SD	D	N	A	SA
1	Teachers must have a say about how the program/courses are designed in their department (e.g., updating courses, linking courses with each other, determining their objectives, developing the student learning activities, evaluating courses, etc.).					
2	The department regular meetings need to pay more attention to curriculum design issues such as updating, planning, evaluating, linking courses, and making policies and procedures regulating these processes.					
3	Curriculum design should be a continuous process.					
4	The department teacher collaboration on curriculum design is important to realize an effective curriculum.					
5	Contributing to the department curriculum design needs to be a part of a teacher's job, especially the employed teaching staff.					
6	I like to participate in curriculum design activities in my department.					
7	I like to develop my curriculum design skills besides my teaching skills.					
8	I do not mind working with my colleagues in teams on curriculum design activities.					
9	I am willing to take part in a curriculum development project that aims at improving the department curriculum and my curriculum design skills.					

6- What do you think are the main challenges affecting curriculum design activities in your department? (Please check all that apply.)

- ☐ No challenges; curriculum design activities are going fine.
- ☐ Lack of teacher time
- ☐ Lack of shared vision among the department staff about what and how to manage curriculum design activities
- ☐ Lack of monetary incentives for teachers
- ☐ Lack of teacher collaborative efforts
- ☐ Lack of teachers' specialized knowledge and skill in curriculum design
- ☐ Lack of management support (e.g., initiating curriculum design projects, providing training, establishing a shared vision about curriculum design, etc.)
- ☐ Lack of management pressure on departments to improve their curricula
- ☐ Other, please describe:

7- What do you think needs to be improved urgently about the way the curriculum is designed in your department? (please, check all that apply.)

- ☐ No need for improvements; the way the curriculum is designed is fine. (Go to question 9)
- ☐ Re-designing some aspects of the study program (e.g., modifying or specifying the program outcomes, modifying some core courses, adding/deleting courses, etc.)
- ☐ Re-designing some courses to modify certain aspects in their design such as objectives, credit hours, content (knowledge and skills), assessment methods, learning activities, etc.
- ☐ (Re)-designing the learning lessons/tasks within a course more effectively so that student learning is improved
- ☐ Establishing plans and policies within the department that regulate curriculum design activities such as designing, reviewing, updating, evaluating, and improving the department program/courses
- ☐ Other, please describe:

8- How do you think improvements in curriculum designing in your department can be realized? (please, check all that apply).

- ☐ through working in teacher design teams to (re-)design the department curriculum
- ☐ through working with a curriculum expert to improve curriculum designing
- ☐ through training teachers on curriculum designing skills
- ☐ through appointing a committee/team in the department to be responsible for curriculum designing
- ☐ through establishing a shared vision among the department staff translated into a number of agreed-upon policies and procedures that regulate curriculum designing in the department.
- ☐ Other, please describe:

9- What domain do you need to learn more about so that you can participate in curriculum design activities more effectively? (Please check all that apply)

- ☐ I do not need to learn new things to participate effectively in curriculum design activities.
- ☐ Curriculum design (i.e., following a systematic design approach, formulating goals, developing effective learning tasks, evaluating the course design, etc.)
- ☐ Pedagogy (i.e., learning about effective teaching methods and how learning takes place)
- ☐ Subject matter
- ☐ New trends and demands in the labor market
- ☐ Other, please describe.

10- What kind of organizational support and conditions would motivate you to participate in curriculum design activities? (Please, check all that apply.)

- ☐ I am not interested in participating in curriculum design activities.
- ☐ The provision of professional support (e.g., training, coaching, exemplary materials, etc.)
- ☐ The provision of time (i.e., decreasing my teaching load)
- ☐ The provision of monetary incentives
- ☐ Working in teams with my colleagues
- ☐ The management support through, for example, encouragement and provision of the necessary autonomy and support
- ☐ Other, please describe:

Appendix A-5: Student & Alumnus Questionnaire

Dear student/alumnus:

Thank you for taking the time to complete this questionnaire which will approximately take 10 minutes. This questionnaire is part of a scientific study that aims to explore certain aspects of the courses offered by your department. Issues such as coherence among core courses, the way courses are designed, and the relevance of courses to the labor market needs will be investigated.

The purpose of this questionnaire is to find out which practices and areas in curriculum design need improvements.

Please answer each of the following items carefully and objectively. You do not need to write your name, and no individuals will be identified or traced from this, i.e., confidentiality and anonymity are assured.

Demographic Information

I- Your study department:

☐ Project Management	☐ Interior Décor Design
☐ Internet Technology	☐ Computer and Electronics Engineering
☐ Computer Applications and Programming	☐ Fashion Design
☐ Graphics	☐ Medical Equipment Engineering
☐ Heating and Air-conditioning Engineering	☐ Auto-mechanical Engineering

II- Study level:

- ☐ Third year ☐ Alumni

III- Gender:

- ☐ Male ☐ Female

1- Based on your experience with the core courses you have studied in your department, to what extent do you agree with the following statements about certain aspects of these courses? Put a (v) under the proper column.

		SD	D	N	A	SA
1	Students are given a written course description (i.e., a document explaining the course structure, objectives, knowledge and skills to be learned, assessment methods and criteria, etc.) for the courses they take at the beginning of the term.					
2	The core courses are consistent with the labor market developments and needs.					
3	The core courses are consistent with the new scientific advances in the subject domain.					
4	The core courses are linked to each other (i.e., they complement each other/build logically on each other).					
5	The teachers/department evaluate the core courses at the end of the term (e.g., the content, study load, assessment, effectiveness of learning activities, etc.) via questionnaires or interviews with the students.					
6	There are core courses that need modifications (e.g., updating the content, changing the instructional approach, modifying the assessment methods, etc.).					
7	The cumulative study workload of courses during a term (e.g., assignments, activities, readings, etc.) is reasonable for the students.					
8	It is clear to me what I am supposed to do during a course (i.e., assignments, activities, etc.).					
9	It is clear to me what the next class in a course will be about.					
10	The learning tasks are well-spread over the course period (i.e., there is no rush to finish the course at the end of the term).					
11	The learning tasks/topics are logically organized throughout the term.					
12	The teaching methods used by teachers are usually consistent with the nature of the course.					
13	During the study of core courses adequate opportunities for practicing the theoretical aspects of the courses are offered.					
14	During the study of core courses, the students are actively engaged in the learning tasks.					
15	Final exams are usually consistent with what has been taught during the course.					
16	Assessment criteria for assignments/quizzes are clear for the students beforehand.					
17	The core courses' implementation requirements/resources (e.g., handouts/textbooks, software, equipment, etc.) are readily available throughout the term.					
18	Teachers of the core courses use effective teaching methods that help student learn better.					
19	Teachers of the core courses show mastery of subject matter. Neutral					
20	Students conduct adequate industry visits during the study of core courses (e.g. to collect real data, conduct a small project, etc.).					

**2- What do you think needs to be done to improve the department curriculum (i.e., its core courses)?
(please, check (✓) all that apply.)**

- ☐ No need for improvements; the courses are fine.
- ☐ Adding or deleting some courses in the study program
- ☐ Re-designing some courses to modify certain aspects such as objectives, credit hours, content (knowledge and skills), assessment methods, learning activities, etc.
- ☐ Using better teaching methods by teachers
- ☐ Involving the students in more practical activities during the courses
- ☐ Decreasing the study workload during the term through , for instance, reducing the number of courses or the number of assignments and projects during the term
- ☐ Updating the courses to reflect the new trends in subject matter or to better match the labor market needs
- ☐ Giving the students a course description for the courses at the beginning of the term (a document explaining the learning objectives, the target knowledge and skills, the learning activities, the course structure, the assessment methods and criteria, etc.)
- ☐ Other, please describe:

Thanks for your time.

Appendix A-6: Course Description Analysis Check list

	Curriculum component	Operationalization	Course title:
1	Rationale	Purpose of course/ relevance to other courses/ relevance to labor market needs	
2	Objectives	Students' learning outcomes	
3	Content	Topics/tasks to be taught	
4	Learning Activities	What are students going to do?	
5	Teacher Role	Lecturer, facilitator, etc.	
6	Materials/ Resources	References, textbooks, handouts, software, tools, etc.	
7	Grouping	Pair, group, or individual activities	
8	Location	Labs/classes/industries	
9	Time	Roster/deadlines/sessions	
10	Assessment	Assessment methods/grade breakdown/assignment descriptions	

Appendix A-7: A Check list for measuring the quality of course learning objectives

Based on the description provided, please put a tick (v) if any of the three aspects on the right of the table exist in the course learning objectives provided.

Description	Learning objectives	Performance-based	Performance conditions	Performance standards
<p>1- 'Performance-based' means the learning objective contains a verb that demonstrates observable performance, for example "type a letter" or "lift a load." <u>Verbs such as 'know', 'learn', and 'understand' are not observable.</u></p> <p>2- 'Performance conditions' means that the learning objective mentions the actual conditions under which the performance will occur or be observed through, for example, identifying the tools, procedures, materials, aids, or facilities to be used in performing the task. For example, "Given a defective DVD,", "Given a paragraph,"</p> <p>3- 'Performance standards' means that the learning objective states the level of acceptable performance of the task in terms of quantity, quality, time limitations, etc. This will answer questions such as "How many?" "How fast?" or "How well?" For example, "At least 5 items will be produced", "Within 10 minutes", and "Without error."</p>				
				
				
				
				
				
				
				
				
				
				
				
				
				
				

Appendix B: Instruments Used for Chapter 3

Appendix B-1: Questionnaire # 1 (participants' reaction questionnaire)

Dear participant,

Please respond to the following questions. There are no correct and wrong answers or desired and undesired responses. I would also like to stress the confidentiality of your responses.

1- To what extent are you satisfied with the following aspects of the professional development arrangement (PDA) that you participated in. Put a (√) under the appropriate column.

	PDA* aspect	Very poor	Poor	Fair	Good	Very good
1	The quality of the learning materials (e.g., the exemplary materials, handouts, and templates)					
2	The competency of the project trainer and coordinator (i.e., his training style, explaining of concepts, and coordinating of activities)					
3	The relevance of the PDA to your job as middle managers					
4	The quality of the PDA logistics (e.g., timing, place, and communication with the PDA coordinator)					
5	The quality of instructional media used (e.g., PowerPoint slides, videos, Office banners, and the project website)					
6	The quality of the practical activities (i.e., their relevance to the goals of the PDA and the availability of a consultant)					
7	The extent of achieving the PDA goals (i.e., improving the middle managers' learning about curriculum design and the development of curriculum policies)					
8	The extent of meeting your training needs regarding curriculum design					
9	Your overall impression of the first round of the PDA					

Note. * PDA= professional development arrangement

2- What did you like the most in the professional development arrangement?

3- What did you like the least in the professional development arrangement?

4- Which of the following was the most effective for your learning about curriculum design? Please rank the items from 1 (the most effective) to 5 (the least effective).

(i)- The learning materials (e.g., the exemplary materials, handouts, and templates)

(ii)- The exchange of experiences and ideas with colleagues during the training sessions and the practical activities

(iii)- The hands-on activities (e.g., policy development and course re-design)

(iv)- The trainer's explanation and consultation

(v)- The extended time of the PDA

(vi)- Other aspects, please describe:

5- Do you have any comments about the PDA in its first round?

.....
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Appendix B-2: Questionnaire # 2 (participants' perceptions of their knowledge of curriculum design)

Dear participants,

To what extent are you knowledgeable about the following aspects associated with curriculum design? Please, select the number that best represents your knowledge, with 1= the least and 10= the highest.

		1	2	3	4	5	6	7	8	9	10
1	I Know who should participate in re-design the educational program (e.g., their professional backgrounds and the sectors they belong to).										
2	I know about the role each curriculum stakeholder should play in the program re-design undertaking.										
3	I know how educational programs are designed through a systematic approach.										
4	I know about the design activities within the analysis phase of the program/course design process.										
5	I Know how program learning outcomes are developed.										
6	I know how program learning outcomes are phrased.										
7	I know about the types of program learning outcomes.										
8	I know how the educational programs can be aligned with the needs of the labor market.										
9	I know what the main sections of a program specifications document are.										
10	I know how to phrase the course learning outcomes/goals.										
11	I know how to link the courses' learning outcomes with the program learning outcomes (i.e., curriculum mapping).										
12	I know how to write a clear and detailed course description.										
13	I know how to conduct a formative evaluation (evaluation for improvement) for the educational program/courses.										
14	I know the difference between formative and summative evaluation.										
15	I know how to develop curriculum policies that regulate program/course development activities.										

Any comments about your knowledge of curriculum design?

.....

Appendix B-3: Pre-intervention Interview

Interview protocol:

Good morning (afternoon). Thank you for coming. This interview serves three purposes. The first is to give you an idea about a curriculum and staff professional development project at SCC, and briefs you on the current phase of the project as described in the project guidebook (draft) that I will give you now. Please, read the guide so that on the plenary workshop we can discuss the issues raised in the guide such as the action plan and the timing of the training sessions. The second purpose of this interview is to find out about your willingness to participate in the current phase of the project, which is a professional development arrangement for the SCC middle management with the outcomes being: 1- better middle managers’ learning about curriculum design, and 2- development of college-wide curriculum design policies. Third, the interview also aims at knowing your entry knowledge about major issues pertaining to academic program/course design.

There are no right/wrong or desirable/undesirable answers. I would like you to feel comfortable with saying what you really think and how you really feel. Your responses and comments will be confidential and will only be used for research and training purposes.

Interview

I- General Information

- Name: - Age: - Gender.....
- Department/division: - Highest academic degree:
- Years of teaching experience (in general):, (in this college):
- Years of holding the current position:

II- Main Questions

- 1- Did you receive any previous education/training on curriculum design? If so, what were the main concepts learned?
- 2- What do you actually do when planning your program or courses, both as a process and products? And what’s your role?
- 3- Do you believe that when the HoDs and Heads of Division get training on systematic program/course planning practices, it would contribute to the improvement of the current program/course planning practices at SCC?
- 4- Would you like to attend a professional development arrangement on academic program/course planning? If not, what are your reasons?
- 5- Under what conditions would you transfer the knowledge/skills that you will have learned to your department/division?
- 6- What beliefs do you have about program/course planning (i.e., its complexity, people involved, its steps, etc.)?

Appendix B-4: Post-intervention interview (1)

Interview protocol

Good morning/afternoon,

Thanks for coming to this interview. The interview seeks to know whether the professional development arrangement has contributed to your learning about systematic and relational curriculum design. It also seeks to investigate whether you have changed or reinforced certain beliefs regarding program/course design. There are no right/wrong or desirable/undesirable answers. I would like you to feel comfortable with saying what you really think and how you really feel. Your responses and comments will be confidential and will only be used for research and training purposes.

Background information

Participant:

Department/Division:

Interview

- 1- Have you changed or reinforces certain beliefs and convictions regarding curriculum design as a result of your participation in the professional development arrangement?
- 2- What did you learn about program/course design compared with your previous knowledge?
- 3- Do you think that the topics addressed and the activities conducted within the professional development arrangement are relevant to your work as middle manager? If yes, in what respect?
- 4- Are you planning to apply what you have learned in your department/division? If yes, what are the aspects that you will transfer to your department and how are you going to do that?
- 5- Do you expect certain challenges applying these aspects in practice? If yes, what are they?

Appendix B-5: Post-intervention interview (2)

Interview Protocol

Good morning/afternoon. Thank you for your coming to this interview. The interview aims at exploring any curriculum design practices you/your department might be working on after attending the first round of the professional development arrangement conducted early this year. The interview also intends to find out the challenges you might be facing in improving curriculum design practices in your department. This interview does not intend to evaluate what you are doing; rather, we are trying to learn more about the implementation challenges and needs so that support and decision-making are better-informed for the second round of the project.

I'd like to assure you that all the information you provide is highly confidential and will only be used for the project/ research purposes. Besides, there are no right/wrong or desirable/undesirable answers. I would like you to feel comfortable with saying what you really think, and do or cannot do. And, if it is okay with you, I will be tape-recording our conversation for accuracy purposes.

Background information

Participant Name:

Department/Division:

.....

Interview Guide

The professional development arrangement initiated early this year addressed three major curricular issues:

- (i)- planning programs/courses systematically and collaboratively (i.e., conducting needs analysis before updating courses, formulation of learning outcomes/objectives, formative evaluation, etc.)
- (ii)- developing detailed and informative curriculum documents (program/course descriptions)
- (iii)- developing curriculum design policies to reduce the current ad hoc curriculum design practices by the college departments

1- Have you managed to implement any of these three issues either at the individual level or department level?

2- If yes, how did it work out? Can you describe what you did? To what extent? How did the teachers react and cooperate?

3- If no, can you tell me why? Is it because you didn't learn anything that you could use on the job, or that there were challenges affecting the implementation of your plans? Please, elaborate on this.

4- How would you describe the role the senior management played in facilitating your work?

☐ *preventing* (i.e., senior managers have prevented you from doing what you have learned during the workshops)

☐ *discouraging* (i.e., senior managers do not say, "You can't do it," but they make it clear that you should not change the status quo)

☐ *neutral* (i.e., senior management has no objection as long as the job gets done)

☐ *encouraging* (i.e., senior management encourages and supports you in applying what you have learned)

☐ *requiring* (i.e., senior management requires that you implement what you have learned; sets deadlines, asks for reports, etc.)

- Can you please motivate/elaborate on your choice.

5- What roles were you playing as an HoD in leading curriculum design in your department before and after the intervention? Could you please elaborate on this?

Appendix B-6: Course Description Analysis Check list

Course ID:

	Observation Items	Availability	
		Present	Missing
1	The course description/syllabus states the <u>rationale</u> of the course (i.e., the relevance of the course to the whole program, to the other courses, or to the labor market).		
2	The course description/syllabus states the <u>objectives</u> that the students should be able to achieve by the end of the term.		
3	The course description/syllabus states the <u>content</u> to be taught (i.e., knowledge and skills to be learned).		
4	The course description/syllabus states the <u>learning activities</u> (e.g., tasks, group projects, presentations, lectures, etc.) that the students will be involved in throughout the term.		
5	The course description/syllabus states <u>the teacher role</u> in facilitating student learning (e.g., lecturing, demonstrating, guiding, etc.).		
6	The course description/syllabus states <u>the learning resources</u> that the students will be using during the course (i.e., handouts, textbooks, work sheets, software, tools, etc.)		
7	The course description/syllabus states whether the students will work <u>individually, in groups, or both</u> .		
8	The course description/syllabus states <u>where</u> the students will be learning (classroom, lab, field work, etc.).		
9	The course description/syllabus states <u>the time-related issues</u> of the course (i.e., course duration, lab time, class time, etc.)		
10	The course description/syllabus states the student <u>assessment</u> methods (i.e., quizzes, group assignments, projects, etc.) including the grading rubric and the assessment criteria.		

Appendix C: Instruments Used for Chapter 4 & 5

Appendix C-1: Interview Scheme for Heads of Department

First Theme: Training and support provided

1- What do you think of the training provided to the HoDs about 'curriculum leadership; was it necessary for you lead curriculum design undertakings? If yes, How?

2- What have you learned from the training you have received and the hands-on curriculum development experience regarding the following aspects:

Aspect	Learning
Curriculum design as a systematic and relational process and as descriptive documents	
Your role as an HoD regarding curriculum design	
Teacher collaborative curriculum design (TCCD)	

3- Do you still need further training to improve your performance as a curriculum leader? If yes, in what areas?

4- What about the training organized for teachers on curriculum design? Do you think it was necessary? How?

5- How do you assess the multiple forms of support provided (1= the least, 5= the most useful)?

Support Form	5	4	3	2	1	NA
Training workshops						
The curriculum design guide						
Follow-up from the project coordinator						
Coaching during the design sessions						
Workload decrease						
Incentives and operational budgets						

6- Which support strategy was the most useful for you as a team?

7- Any comments or suggestions for improvement?

8- Which of those support forms are necessary for you to continue working on systematic curriculum design?

9- Did you use the previously developed curriculum policies (i.e., the templates and the exemplary materials)?

Second Theme: Curriculum design undertaking

As you know the project focused on two important processes: 1- re-designing the educational program systematically and relationally and 2- describing the program clearly and in detail.

1- What activities did your team do? And what challenges did you face as a leader or as a team during the curriculum design phases?

Phase	Activities	Difficulties
Analysis		
Design/development		
Evaluation		

2- What was the most challenging phase or activity for your team during the curriculum design undertaking?

3- What was the most challenging aspect in describing the program/courses?

4- Who, if any, participated in informing the re-designing of your program?

5- What do you think of what you have achieved compared with the previous status of the department curriculum?

6- What was the role of the training (the previous and the current one) in achieving this progress?

7- What are you planning to do in the future about the department curriculum? Any expected obstacles?

Third Theme: Curriculum leadership

1- Did you change your view of your job as an HoD regarding curriculum development after the training and the actual re-designing of the department curriculum?

2- What roles or main activities did you do in leading your TCCD team?

3- What difficulties did you face as a curriculum leader in leading your TCCD team?

4- Which of the following represented a challenge for you as a curriculum leader?

Aspect	Difficulty
Establishing purpose	
Developing a work structure, an action plan, etc.	
Providing support for the team (e.g., explaining concepts and attending to individual needs)	
Following a systematic approach	
Involving internal and external stakeholders	
Encouraging team members	
Managing the team (e.g., resolving conflicts and assigning tasks)	

5- Do you think the training workshops were useful for you to assume a leading role in curriculum design? And which support strategy were most useful for you as a curriculum?

6- Do you think the HoD needs to play a leading role regarding curriculum development? And what should he/she do to embody this role?

7- What organizational conditions or support do you think will help you assume a curriculum leadership role in your department?

8- What should the senior management do so that you can exercise effective curriculum leadership in practice?

Fourth Theme: TCCD teams

- 1- What do you value the most about TCCD teams?
- 2- How did the team members perform?
- 3- What do you think of TCCD teams as a strategy for continuous curriculum development in the department?
- 4- What do you think of TCCD teams as a strategy for teacher professional development ? What can teachers learn from it?
- 5- Did you collaborate with the other TCCD teams? In what respects?
- 6- What difficulties did you encounter as a TCCD team?

Appendix C-2: Interview Scheme for Teachers

First Theme: Training and support provided

1- What do you think of the training provided to the teachers about curriculum design? Was it necessary for you to participate in the curriculum development undertaking? If yes, How?

2- What have you learned from the training you have received and the hands-on curriculum development experience regarding the following aspects:

Aspect	Beliefs/Learning
Curriculum design as a systematic and relational process	
Curriculum design as descriptive documents	
Teacher collaborative curriculum design (TCCD)	

3- Do you still need further training to improve your curriculum design skills? If yes, in what areas?

4- How do you assess the multiple forms of support provided (1= the least, 5= the most useful)?

Support Form	5	4	3	2	1	NA
Training workshops						
The curriculum design guide						
Follow-up from the project coordinator						
Coaching during the design sessions						
Workload decrease						
Incentives and operational budgets						

5- Which support strategy was the most useful for your team?

6- Any comments or suggestions for improvement?

7- Which of these support forms are necessary for teachers to continue working on systematic curriculum design?

8- Did you use the previously developed curriculum policies (i.e., the templates and the exemplary materials)?

Second Theme: Curriculum design undertaking

As you know the project focused on two important processes: 1- re-designing the educational program systematically and relationally and 2- describing the program clearly and in detail.

1- What activities did your team do? And what challenges did you encounter during the curriculum design phases?

Phase	Activities	Difficulties
Analysis		
Design/development		
Evaluation		

2- What was the most challenging phase or activity for your team during the curriculum design undertaking?

3- What was the most challenging aspect in describing the program/courses?

4- Who, if any, participated in informing the program re-design undertaking?

5- What do you think of what you have achieved compared with the previous status of the department curriculum?

6- What was the role of the training in achieving this progress?

7- What are you planning to do in the future about the department curriculum? Any expected obstacles?

Third Theme: TCCD teams

- 1- What do you value the most about TCCD teams?
- 2- How did the team members perform?
- 3- What difficulties did you encounter as a TCCD team?
- 4- What do you think of TCCD teams as a strategy for continuous curriculum development towards better consistency?
- 5- What do you think of TCCD teams as a strategy for teacher professional development ? What can teachers learn from it?
- 6- Did you collaborate with the other TCCD teams? In what respects?

Fourth Theme: Assessing the HoD's curriculum leadership

- 1- How would you rate the HoD's performance on the following four curriculum leadership tasks during the project? (1= the least, 5= the most)

Curriculum leadership task	Description	Assessment										
Establishing curriculum purpose	<ul style="list-style-type: none">- clarifying the project goals and reminding the team of it now and then- establishing a shared vision among the team- clarifying the rationale and purpose of the design tasks- establishing a sense of direction	<table><tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	5	4	3	2	1					
5	4	3	2	1								
Providing curriculum structure and support	<ul style="list-style-type: none">- establishing a clear work structure- explaining the work procedures- devising an action plan- decreasing teaching load- providing examples, templates, etc.- encouraging and motivating teachers	<table><tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	5	4	3	2	1					
5	4	3	2	1								
Promoting curriculum collaboration	<ul style="list-style-type: none">- Involving internal and external stakeholders- encouraging collaborative work and decision making- demonstrating interpersonal skills (respect, conflict resolutions, etc.)- establishing a healthy collaboration atmosphere	<table><tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	5	4	3	2	1					
5	4	3	2	1								
Coordinating curriculum design efforts	<ul style="list-style-type: none">- assigning tasks- managing variables such as time, space, people, and products- being organized and prepared- contacting senior management for seeking support or informing/involving them- linking efforts to the predefined goals/outcomes	<table><tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	5	4	3	2	1					
5	4	3	2	1								

- 2- Could you please comment on how the HoD performed each curriculum leadership task?
- 3- What do you expect of an effective HoD regarding leading curriculum development work? (personal characteristics & activities he should do)

Appendix D: Pictures from the PDA-1 & PDA-2 activities

Appendix D-1: Pictures of some plenary sessions attended by teachers, middle management and senior management

Appendix D-2: Pictures from some training sessions

Appendix D-2 (continued): Pictures from some training sessions

Appendix D-3: Pictures from some TCCD activities

Appendix E: Example curricular artifacts developed by TCCD teams

Appendix E-1: A new outline for an educational program

Core technical courses

No.	Code	MATERIALS	Requisites	Cr./h	Let.	Lab	Tut.
1	GDM131	History of Art	--	2	2	0	0
2	GDM 132	Art drawing	--	3	2	2	0
3	GDM 133	Design principles	--	3	2	0	2
4	GDM 134	Visual Identity	GDM 133	3	2	2	0
5	GDM 135	Photography	--	3	2	0	2
6	GDM 141	Perspective drawing	GDM132	3	2	3	0
7	GDM 142	Digital Imaging	GDM 133, GDM 135	3	1	4	0
8	GDM 143	Typography	GDM 133, GDM 134	3	2	2	0
9	GDM 144	Copywriting for Advertising.	GDM 132, GDM 141	4	2	2	2
10	GDM 145	2D Animation & Imagining	GDM 133	2	1	3	0
11	GDM 146	3-D Design 1	GDM 133	3	2	2	0
12	GDM 151	Packaging design	GDM 133, GDM143	3	2	2	0
13	GDM 152	Digital Film Production 1.	GDM 133, GDM 145	3	2	3	0
14	GDM 153	Desktop publishing	GDM 133,GDM 142,GDM 143	3	2	2	0
15	GDM 154	Advertising planning & production.	GDM 153	3	2	0	2
16	GDM 255	3-D Design 2	GDM 133,GDM 146,GDM 153, GDM 162	3	1	4	2
17	GDM 156	Web design 1	--	3	2	2	0
18	GDM 157	Professional Practice	GDM 133,GDM 142,GDM 134, GDM 144, GDM 152,	2	0	0	0
19	GDM 161	Carton design & animation	GDM 141, GDM144, GDM 146, GDM255, GDM 153, GDM 162	3	1	4	0
20	GDM 262	Web design 2	GDM 136	3	1	4	0
21	GDM 163	Digital Film Production 2.	GDM 133, GDM 144	2	1	2	0
22	GDM 164	Graduation Project	All materials	5	0	15	0
Sum.				65	34	58	8

Appendix E-1 (continued): A new outline for an educational program

Courses required by the division

No.	Code	MATERIALS	Cr./h	Let.	Lab	Tut.
1	INTT 210	Introduction to Internet	3	2	2	0
2	CEET 260	Project management and Planning	2	2	0	0
3	CEET 270	PC Hardware and Maintenance	3	2	2	0
Sum.			8	6	4	0

General education courses

No.	Code	MATERIALS	Cr./h	Let.	Lab	Tut.
1	ENGL 100	English 1	5	2	0	5
2	MATH 100	Mathematics 1	3	2	3	0
3	GENR 120	Islamic Culture	3	2	0	0
4	AUTT 210	Technical Drawing	3	2	3	0
5	CSAT 100	Introduction to Computer Technology	4	2	6	0
6	GENR 130	Arabic	3	2	0	0
7	ENGL 105	English 2	5	2	0	5
8	MATH 105	Mathematics 2	3	2	0	3
9	CSAT 210	Logic System Design	3	2	2	0
10	BUSM 210	Principles of Marketing and Management	2	2	0	0
11	CSAT 215	C Programming	4	2	6	0
12	ENGL 210	Technical English 1	2	2	0	0
13	ENGL 215	Technical English 2	2	2	0	0
14	ENGL 300	Communication Skills1	2	2	0	0
15	ENGL 305	Communication Skills2	2	2	0	0
Sum.			46	30	17	8

A breakdown of courses and allocated credit hours

No. of all courses	Gen. Edu. courses	Division courses	Dept. courses
40	15	3	22
Credit hours	Credit hours	Credit hours	Credit hours
119	46	8	65

Appendix E-2: A newly developed curriculum map

1= INTRODUCTION / 2= PRACTICE / 3= REINFORCE / 4= MASTER

GRADUATION PROJECT	PROFESSIONAL PRACTICE	CARTON DESIGN & ANIMATION	3D DESIGN 2	3D DESIGN 1	DIGITAL FILM PRODUCTION 2	DIGITAL FILM PRODUCTION 1	ADVERTISING PLANING & PRODUCTION	COPYWRITE FOR ADVERT.	WEB DESIGN 2	WEB DESIGN 1	2D ANIMATION & IMAGAGING	PACKAGING DESIGN	DESKTOP PUBLISHING	PHOTOGRAPHY	TYPOGRAPHY	Visual IDENTITY	DIGITAL IMAGING	DESIGN PRINCIPLES	PERSPECTIVE DRAWING	ART DRAWING	HISTORY of ART	Program Learning Outcomes*
2	2	2	2	2										3		3	3	3	4	4	4	1. إن يظهر الطالب حديث التخرج الكفاءة والقدرة في: 1. فهم مدارس الرسم والتصميم، ومهارة الرسم الحر والتعامل مع عناصر تكوين العمل الفني (الضوء والظل واللون والإسواء....) وكذلك رسم المنظور (إضافة إلى رسم الكارتون وفقاً لعلم التشريح.
2	2	2	2	2	2	2			2	2		3	2	3	3	3	3	4	3	3	3	2. فهم وتحليل تكوين العمل الفني ونظرياته وكذا أسس ومبادئ التصميم الرقمي.
2	2	2	2	2	2	2	1	1	2	2	1	4	4	4	4	4	4	1	3	3	3	3. الفهم والتحليل والتطبيق لـ: الرسم الرقمي، تكوين الخطوط الرقمية وكذا التقاط ومعالجة الصور الرقمية وتوظيف كل ما سبق في التصميم بالإضافة إلى عمل هويات بصرية عامة للشركات والمؤسسات المختلفة.
2	2											4	2	3	4	2	2	1				4. معرفة وفهم أنواع المطبوعات (المصصقات والمنشورات...) وأن يبين الفرق بين أشكالها وخاماتها واستخداماتها ثم يبين قدرته التصميمية في تنفيذها.
2	2	3	3	3	2	2			4	4	4		2		2	2	2	1				5. تصميم صفحات وأجهات مواقع الانترنت وكذا برامج الوسائط المتعددة (الأنترنت).
2	2	3	4	4	4	4	4	4			1		2	3	2	1	1	1	3			6. إعداد خطة إعلانية متكاملة بشكل منهجي وتطويرها باستخدام تقنيات الجرافيكس والمثلثية.
2	2	4	2	2	2	2	4	4			1		2	3		1	1	1	2	3		7. إعداد أفلام كرتونية ثلاثية البعد مع إعداد المخططات الرسومية (Storyboard).
2	2	2	2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2	2	3	8. الفهم والتحليل والتخطيط وإدارة وتنفيذ مشاريع عملية مرتبطة بسوق العمل والتواصل الفعال مع الزبائن.

* Curriculum maps did not exist before. The TCCD teams developed these documents to ensure that program learning outcomes are adequately addressed by the program courses.

Appendix E-3: A new brief course description*

رمز المادة	اسم المادة	س/م	س/ن	س/ع	نوع المادة	السنة	الترم
FDtE 100	Basic of Cloth finishing	2	3	1	تخصصية	1	1

Course Overall Goal الهدف العام

القدرة على التعامل مع مكانن الخياطة واستخدامها في تنفيذ أساسيات الخياطة تمهيداً لمواد خياطة الملابس

Course Learning Outcomes المخرجات التعليمية ومحددات الأداء

م	المخرجات التعليمية	محددات الأداء
1	القدرة على استخدام المكانن بطريقة سليمة وأمنة	1.1 التعرف على إرشادات الأمن والسلامة لاستخدام المكانن وتطبيقها 1.2 التعرف على طريقة صيانة المكانن 1.3 التعرف على قطع المكانن وفوائدها 1.4 تطبيق طريقة صيانة المكانن 1.5 تطبيق كيفية استخدام قطع المكانن
2	القدرة على إنتاج النماذج الأساسية للخياطة	2.1 التعرف على النموذج الأساسي لأنواع الخياطات 2.2 التعرف على النموذج الأساسي لأنواع السحابات 2.3 التعرف على تطبيق النموذج الأساسي لأنواع الجيوب 2.2 تطبيق النموذج الأساسي لأنواع الخياطات 2.2 تطبيق النموذج الأساسي لأنواع السحابات 2.3 تطبيق النموذج الأساسي لأنواع الجيوب
3	القدرة على استخدام أنواع الخياطات المصممة في المكانن	3.1 التعرف على أنواع الخياطات المصممة في المكينة والتدرب عليها 3.2 تنفيذ فتحات أزرار بأحجام مختلفة 3.3 تطبيق برم أطراف القماش باستخدام خياطة الزقاق

Teaching Methods استراتيجيات التعلم المستخدمة

- 1- محاضرات نظرية يتخللها نقاش
- 2- تطبيقات عملية لكل مخرج تعليمي

Assessment Methods طرق التقييم المستخدمة

النشاط	الدرجة
امتحانات عملية	
امتحانات نظرية	
تسليم النماذج الأساسية للخياطة	
الإجمالي	100%

* Due to time constraints, most TCCD teams developed brief course descriptions with focus on the formulation of learning outcomes, teaching methods, and assessment methods. The teams ensured that these components are aligned with each other. These brief course descriptions would function as the base for more detailed descriptions in a coming development phase.

Appendix F: Example templates and exemplary materials provided to TCCD teams

Appendix F-1: An example of exemplary materials (formulation of program learning outcomes)

Some examples of formulation of program learning outcomes (PLOs)

Educational Program 1: Hotel and Restaurant Management

PLO 8. The graduate has reliably demonstrated the ability to perform effectively as a member of a food and beverage team.

Elements of Performance

- Prepare and present small and large quantities of food, displaying food as per house policy; and alcoholic beverages including mixed drinks
- Select and use the correct tools, equipment, supplies, and techniques for food and beverage preparation and service
- Take, record, retrieve, serve, and clear orders for food and beverage, and complete follow-up service including computer and manual processing of guest checks
- Participate effectively in the planning and provision of services for special events (e.g., conferences, festivals, banquets)
- Prepare and monitor records which assist efficient food and beverage preparation and service such as staff schedules, checklists related to service, and reservation records
- Comply with safety regulations and health and sanitation codes related to food and beverage preparation and service
- Apply principles of cost controls and inventory controls to food and beverage preparation and service

Educational Program 2: Teacher Education

PLO 3: Managing the classroom and the teaching environment

Teachers successfully completing their training program will:

- 3.1 be familiar with a range of strategies to promote good classroom behavior and establish a purposeful learning environment
- 3.2 recognize symptoms and behavior that might indicate that a learner has special educational needs and know how to seek advice from others such as senior staff or specialists on ways of addressing their needs
- 3.3 take account of and support learners' varying needs within the class group so that all learners in the group can make good progress
- 3.4 organize and manage teaching and learning time effectively

Appendix F-2: An example template (a course description template)

Course title & code:

Instructor contact info.:

Course instructor:

Date of last update:

Course Overall Goal

.....

Course Learning Outcomes

1-

1.1

1.2

2-

1.1

1.2

Course Content/Main Topics

-

-

-

Learning Materials/Resources

-

-

-

Main Teaching Methods

-

-

-

Teacher Role

-

-

Course Structure

1
2
3
4

* type of session (e.g., lecture, lab, etc.)

Course Assessment

1	
2	
3	
Total	100

CONTENT

ASSESSMENT

**COURSE
LEARNING
OUTCOMES**

**PROGRAM
LEARNING
OUTCOMES**

PEDAGOGY

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