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# The Integration Of The National Occupational Skills Standard (NOSS)-Based Training System And The National Dual Training System (NDTS) In Malaysia

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### Abstract

Since 1993, skills training in Malaysia had been largely premised on the National Occupational Skills Standards (NOSS). The introduction of the National Dual Training System (NDTS) in 2005 had resulted in two training systems co-existing, both seeking to meet the country's skilled workforce needs. The development of the NOSS-based training system and the NDTS as different entities had caused confusion and raised concerns on their future direction and positions. The basic purpose of this study was to examine how the NOSS-based training system and the NDTS had evolved. On the basis of examining the comparability, the ultimate aim was to ascertain whether there was a basis for their integration within the country's national skills training system. The study adopted the qualitative research design. For data collection, it employed interviews of the key participants, review of documents, case studies and sectoral study. The developments of the training systems were examined utilising analytical dimensions which covered the purpose of training, policy framework, delivery mechanism and work context. The two systems showed strong convergence in almost all these dimensions. Based on the five major themes which emerged from the investigation, the study contended that the NOSS-based training system and the NDTS should no longer be kept separate. Their integration into a unified system can be realized through a framework which meets various key requirements and involved three phases of consolidating the existing systems, including making the NOSS-based training system more dynamic and the NDTS more flexible.

**Keywords:** *National Occupational Skills Standards (NOSS), National Dual Training System (NDTS).*

### Introduction

Malaysia has always recognized the criticality of human resources development to the country's national development policies and programmes (ILO, 2003, p.3). Since the country gained its independence from British colonial rule in 1957, its economy has undergone major structural changes which Sieh (2000, pp.18-25) describes as import substitution (1957-1968), export orientation (1968-1982) and trade and investment-linked (1982-1997) phases. Thus, the Malaysian economy which was based on agriculture and mining, became increasingly dependent on the manufacturing sector. In 1987, the manufacturing sector overtook agriculture sector, for the first time, as the biggest contributor to the country's Gross Domestic Product. The changes in the country's economic structure had posed severe challenges on human resource development at large and skills training in specific. The national skills training system struggled to fully meet the skilled workforce demanded by the country's changing economy (Malaysia, 2001a; Malaysia, 2001b; Zaharaton, 2002). In its report published in 1991, a high-level Cabinet Committee on

Training chaired by the Minister of Education concluded that the country's skills training system was seriously deficient in meeting the country's changing skilled workforce needs.

While the skill delivery system, thus far, has been able to meet some of the industrial skill requirements, there is strong indication that it has not been able to meet the manpower demand of industry satisfactorily. It is clear that for the industries to leap forward without experiencing skill bottlenecks, the present training arrangements would have to be reviewed. This is not only to ensure increased skill output, but also to fulfill the qualitative aspects of future manpower requirements. A decision will have to be made to replace the present skill delivery system with one which is more sensitive to market needs. (Malaysia, 1991a, pp.52-53).

The ensuing review of the national skills training system culminated, amongst others, in the decision of the National Vocational Training Council (NVTC) to introduce a National Occupational Skills Standards (NOSS) and certification system in December 1992 (MLVK, 1994; NVTC, 2001). The NOSS was defined as "specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia for an occupational area and level" (DSD, 2008, p.2). It provided the basis for skills training programmes to be undertaken according to actual workplace requirements. In essence, the introduction of the new NOSS-based training system sought to strengthen linkages between training and the world of work. The competency-based approach was adopted in order to align the new NOSS system towards meeting the actual needs of the Malaysian industries. The system also aimed to expand the accreditation of skills by providing well-defined career paths for skilled workers and encouraging them to work towards higher-level jobs. By the end of the decade in December 2000, the NVTC had accredited 443 training institutions to run NOSS-based training programmes (MOHR, 2007a, p.84). The number of institutions increased to 1,135 in 2005 (MOHR, 2007b, p.79) and 1,171 in 2006 (MOHR, 2007c, p.39), indicating the growing strength in the position of the NOSS-based training within the Malaysian skills delivery system.

Yet at the turn of the twenty-first century, the prevailing training system seemed inadequate to cope with Malaysia's changing economic and industrial development. This was evident from various policy pronouncements that declared that Malaysian industries needed a new type of skilled workforce, known generally as 'knowledge-workers or K-workers'. The Eighth Malaysia Plan, 2001–2005, stipulated that "education and training strategies would be aimed at producing students with broad-based knowledge, thinking skills and innovativeness to effectively contribute to the knowledge-based economy" (Malaysia, 2001a, 4.98). The Plan also emphasised that new training programmes would have to be designed to develop a workforce that could adapt to rapid technological and workplace changes, and that the student-centred learning approach might need to be enhanced in order to nurture creativity and innovativeness as well as thinking skills among trainees (Malaysia, 2001a, p.113). The Third Outline Perspective Plan, 2001-2010 also underscores the importance of human resource development. It stresses the need for close collaboration between training institutions and industry at large (Malaysia, 2001b, 6.28), and expounds the need to introduce a new "dual training approach":

The adoption of the dual training approach through apprenticeship schemes will be enhanced during this period. [...] More training institutions will be encouraged to adopt this approach in collaboration with industry [...] The focus is on hands-on training at the workplace whereas the training institution provides the theoretical foundations. (*ibid*, 6.41).

Arising from bilateral talks between the Governments of Malaysia and Germany in 1986, a study known as 'Basic Study on the Design of a Dual Vocational Training Scheme in Malaysia' was undertaken by German consultants during 1997-1999. Its main purpose was to strengthen technical education and vocational training in Malaysia by incorporating the dual training system practiced in Germany (Blumenstein, et al, 1999). The Basic Study was followed by the implementation of a Dual Training System Project, which ultimately led to the decision of the Government of Malaysia on 19 May 2004 to implement the National Dual Training System (NDTS). The NDTS was targeted to commence in 2005 so that it would produce 31,500 skilled workers by 2010 (MLVK, 2005). The NDTS involves a two-year training programmed carried out at two learning environments namely 70-80 percent in workplaces and the remaining 20-30 percent in selected training institutions. In terms of training delivery, self-reliant learning, action-oriented teaching as well as learn and work assignments have been adopted as the fundamental teaching and learning approaches. The notion of 'training occupations' was also introduced for the first time in Malaysia to designate the training programmes to be selected for NDTS implementation. With regard to curriculum design and development, National Occupational Core Curriculum was introduced as a new form of training documentation to provide the basis for training and assessment.

### **Problem Statement**

The NDTS had been introduced on the premise that the existing NOSS-based training system 'had failed' to cope with the increasing complexity, rapid technological changes and high quality expectations at the workplace (DSP, 2003). The reality that NOSS did not have any direct role in the new NDTS despite having established itself as a major feature of the national skills training system in Malaysia needed to be understood and clarified. The introduction of the new NDTS had raised questions on the prevailing relevance of the NOSS-based training system, and its future position in the Malaysian skills training scene. In the light of such concerns, a comparative study of the NOSS-based training system and the NDTS was clearly warranted in order to understand the actual differences, if any, which existed between them. Considering that both training systems were poised to

feature prominently in the country's national skills training system, it became necessary to explore their possible convergence or integration.

### **Research Question**

The central or focal question used in driving this research was: *'Whether it is necessary and feasible to integrate the NOSS-based training system and the National Dual Training System in Malaysia, and if so, what is the appropriate framework to be adopted for the integration?'* The basic purpose was to examine how the two training systems had evolved in order to determine their key characteristics and parameters, and subsequently to examine their comparability. The ultimate aim was to ascertain whether there was any basis for their integration within the country's national training system.

### **Methodology**

The suitability of the qualitative research approach as the preferred research design had been justified basing on the purpose of the study in relation to widely accepted features of qualitative research. The study utilised interviews, documents and participant-observation as its main sources of data, supplemented by instruments such as the researcher's field notes and research diary, as well as for the work context of the subject under investigation, sector study and case studies. The investigation into the NOSS-based training system and the NDTs in Malaysia was first undertaken through the investigative phase followed by the evaluative phase. The development of the training systems was examined utilising analytical dimensions which covered the purpose of training, policy framework, delivery mechanism and work context. A structured data analysis process was applied to 'unearth' the major findings and outcomes, translating them into parameters, issues and themes. These were then interpreted and evaluated in the light of the main subject under study, namely the comparability of the two training systems.

### **Comparative Review**

The investigation into the NOSS-based training system and the NDTs had revealed their 'real' purpose and character as well as highlighted the main issues. This had enabled a comparative review to be undertaken on the two training systems in terms of policy framework, training delivery and implementation, the aims to be achieved as well as the work context. Five *core (global) themes* on the development of the NOSS-based training system and the NDTs were found to emerge. Collectively, they represented the research findings and results as a whole.

Firstly, there exist commonalities in terms of shared aims and various dimensions in the two training systems. They basically serve the common purpose of meeting the changing skilled workforce requirements of the same Malaysian economy. Nevertheless, their outputs are different – skilled workers and K-workers - although even this can be bridged by incorporating the 'K-worker occupational competence' which has been identified. Their policy frameworks and delivery structures have also shown strong convergences and similarities in most dimensions. Even for those dimensions which show fundamental differences, the discrepancies are not totally irreconcilable, and therefore can be bridged by making some adaptations without the need for wholesale or fundamental changes.

Secondly, both training systems suffer from some limitations and shortfalls. The NOSS-based training system has over-emphasised the achievement of performance standards and outcomes without giving equal weightage to the delivery of the learning and instructional processes. Its underpinning job-based orientation and behaviourist inclination have resulted in its rather limited applications that is meeting the skills training needs of existing workplace requirements rather than catering for fast-changing and futuristic work situations. These shortfalls strongly suggest that the NOSS-based training system with the NOSS at its core, requires to be reviewed to make it more dynamic and responsive to the workplace changes. Likewise, the NDTs has also been hampered by several weaknesses. Its adoption of the work process approach particularly in the development of work process-oriented curriculum, has been seen to be impractical in the Malaysian context because of its excessive strain on practitioners and experts, companies, and facilitators, as well as on time and resources. The declared intention to adopt the notion of *Beruflichkeit* as its underpinning occupational orientation is also not achievable in the immediate future because of the prevailing industry and employment structures as well as existing occupational classifications. These findings suggest that it is crucial for the NDTs to be re-aligned, to attune it closer to the actual Malaysian context and realities including through more innovative means.

Thirdly, the NOSS-based training system has provided, the country with a well-established work-based foundation for the development of the country's skilled workforce. The system has utilized the actual work undertaken in the workplace as its fundamental basis for establishing competency standards and subsequently training and certification. Coupled with its strong position in the country's education and training system, it is evident that it can provide the appropriate platform for enhancing the implementation of the NDTs which also requires such a work-based foundation as a starting point. It is possible, for example, to develop learn and work assignments for the NDTs using the NOSS as a major input, and to run NDTs programmes in training centres which have been accredited for NOSS-based training programmes.

Fourthly, there are strong evidences to suggest that the NOSS-based training system can become more compatible with the NDTS if it is transformed into a more dynamic and future-oriented system that can quickly respond to fast-changing work situations. Key areas of enhancement are expanding its contents to include the competencies expected of K-workers (also in the NDTS curriculum), and the need to focus on its delivery (process) aspects apart from merely providing clear standards to be achieved (outcomes). Conceptually, the process of transforming the system involves combining the outcome-based orientation of the existing NOSS-based training system with the process orientation of the NDTS, thus attesting to the possible integration of the NOSS-based training system and the NDTS.

The fifth and final over-arching theme which emerged from the study is the strong indication that there should be a review of the NDTS in its existing form especially to accommodate the actual Malaysian context and realities. Although there are strong merits for incorporating new concepts and approaches such as the notion of vocation (*Beruf*) and work process orientation, it is contended that the implementation of the NDTS must take cognizance of the real Malaysian situations. Therefore, it is envisaged that the NDTS need to be more flexible in its design and approach and in doing so, making it even more amenable for integration with the NOSS-based training system.

### **A Strong Case For Integration**

This study provide ample basis to advocate the integration of the NOSS-based training system and the NDTS, particularly shown by their strong convergence in terms of the dimensions of purpose, policy framework and delivery structure. The introduction of the NDTS which has totally excluded any interface with the prevailing NOSS-based training system is not tenable anymore, and this needs to be addressed immediately. In short, there are no compelling reasons to exclude the NOSS-based training system from the NDTS, or vice-versa. Having addressed the fundamental question of ‘why’, the question now is ‘how’ to realize the integration? This is considered next.

An early hint on how the integration of the NOSS-based training and the NDTS can be rationalized conceptually has been given by Loose & Juri (2002) when they observe that the training approaches underlying the two systems have strengths which complement each other:

The complementary nature of both approaches seems to suggest that it may be desirable to combine them. Competency-based training [underlying the NOSS-based training system] focuses on the definition of skills for job competence without addressing the instructional process as such. On the other hand experience-based training [underlying the NDTS] addresses the instructional process, yet, seems to have less regard for the “ceiling” of the acquisition of skills, the sequence of targeted skills which – once mastered – render an individual competent for performance in a job (p.9).

Thus, it would be highly advantageous to consider developing a unified system which builds upon the outcome-based orientation of the NOSS-based training system and the process orientation of the dual training system. In this regard, it has been seen that the NDTS has already attempted to do so by having the learning outcomes specified in the National Occupational Core Curriculum and, at the same time, ensuring that the instructional and learning processes are given equal attention through the learn and work assignments. The challenge then is for the NOSS-based training system to do the same.

### **Developing A Preliminary Framework For The Integration Of The NOSS And The NDTS**

#### **Key Requirements**

In developing a framework for a vocational education and training system at the national-level, Wallace (2007) postulates that the system should meet ‘key requirements’ so that the framework can serve its underlying purpose (p.586). Likewise, an initiative to develop a framework for vocational education and training at the national-level in Scotland had considered that a ‘unified system’ would include requirements such as an all-encompassing purpose and ethos that caters for all pathways; a single administrative and regulatory system; a single system covering different modes of participation; course structure and pathways which have flexible entry points, credit accumulation and a single progression ladder; a single system of certification; a common framework of assessment methodologies including a common grading system; delivery institutions which is not constrained by the type of programme; and socialisation, qualifications and conditions which are consistent for all staff (Howieson, Raffe & Tinklin, 2000, p.2).

Based on earlier discussions on the themes, issues and theses which emerged in the study here, the framework for the integration of the NDTS and the NOSS-based training system should be premised on the following key requirements:

i. Purpose that clarifies the key roles of the system, namely to fulfill the changing skilled workforce needs of the Malaysian economy (employment function) at present but has the ultimate goal of providing young persons in the country to have training and qualification opportunities in all professions (lifelong learning function);

ii. Policy framework that clearly underlines the following:

- A common legislative and regulatory framework;
- Highly supportive development and human resource policies for all levels of skilled workforce development;
- Funding responsibilities and arrangements, for the government and the industry;
- A single administrative structure and mechanism, for co-ordinating and facilitating the system;
- A unified system of national certification; and
- A common system of assessment.

iii. Delivery structure and mechanism that includes:

- Curriculum approaches that reflect trainees’ needs, and place equal emphasis on both objectives (outcomes) and processes involved;
- Instructional processes which are basically constructivist in its theoretical underpinnings but reflect the context and realities of the Malaysian industry and society at large;
- Training institutions that are not constrained by different types of training programmes; and
- Strong linkages and partnerships between all main stakeholders especially policy and implementing bodies, and the industry;

**Basic Framework: A Unified System**

The strong commonalities of the NOSS-based training system and the NDTs may be likened to Raffé (1994)’s reference to different education and training pathways sharing ‘common destinations’. When this situation happens, then the different pathways should become ‘homogeneous’ rather than remaining ‘heterogeneous’ as implied in this conclusion:

...it is easier to sustain heterogeneity in systems where different pathways lead to different destinations, than in systems where different pathways lead to common destinations (p.56).

The attempt to bring together the NOSS-based training system and the NDTs, however, requires that a more dynamic NOSS-based training system be developed. Conceptually, the process of transforming the system involves combining the outcome-based orientation of the existing NOSS-based training system with the process orientation of the NDTs. It involves making a fundamental shift from the existing NOSS-based training system which primarily focuses on specifying the outcomes of training through the activities of standard-setting, assessment and certification, to one which gives equal weightage to the processes of teaching and learning. In the current system, the Department of Skills Development operates mainly as a standard-setting and certifying body for the NOSS-based training system through the functions of establishing the NOSS, stipulating the assessment criteria and procedures, and awarding national skills certificates. It does not supervise closely how the training is undertaken in its accredited training centres; instead, it gives the centres much autonomy to make their own choice of curricular and instructional approaches and materials, provided these are based on the NOSS (refer Figure 1). As highlighted in this study, such a situation has been widely criticized and increasingly found to be incapable of coping with the changing demands of future workplaces.

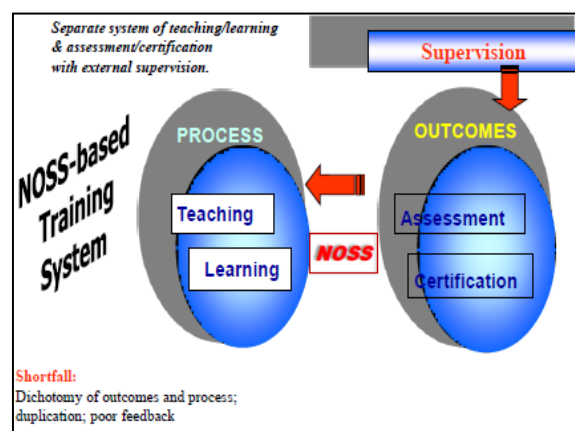


Figure 1: Existing NOSS-based Training System: Separated Outcomes and Process (Source: Modified from Loose (2002, p.7)

The central aim of transforming the NOSS-based training system is to arrive at a more comprehensive system of supervised teaching and learning, together with an enhanced assessment and feedback mechanism as well as the certification function (see Figure 2). This can be achieved by adopting a work process-oriented approach similar to that of the NDTs.

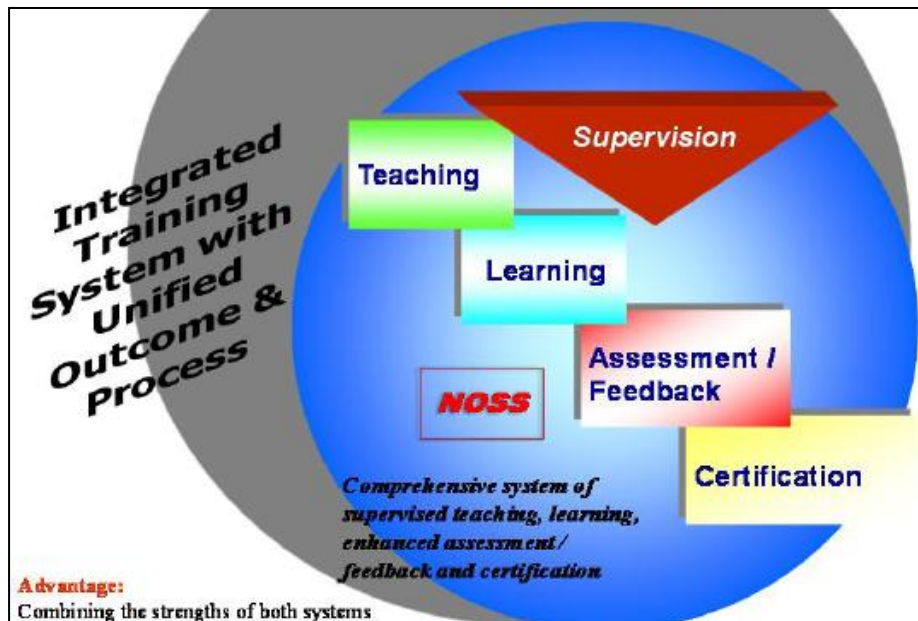


Figure 2: 'Dynamic NOSS-based Training System: Unified Outcome and Process' (Source: Modified from Loose (2002, p.28); Loose & Juri(2002, p.10)

The transformation will, at the start, involve the establishment of a new form of NOSS which encompasses the development of comprehensive occupational profiles to reflect the demands of modern industries and workplaces. In the current practice, the scope of the occupational profile for any NOSS is determined through occupational analysis which identifies the job structures and requirements of the related industry in the economy. The occupational analysis would need to be extended to include research or analysis into the technological trends and changes, as well as policy considerations including national development plans and key parameters of the country's training framework (refer Figure 3). The multi-dimensional analysis can lead to the development of a more comprehensive occupational profile that caters to the 'dynamic' situation in the workplace. The new form of NOSS would then provide the bases and terms of reference for curriculum development.

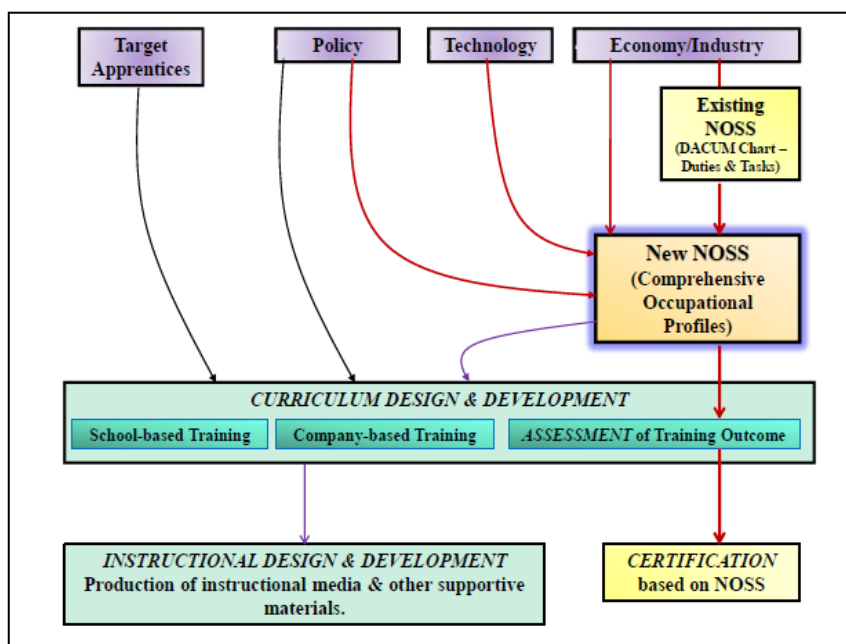


Figure 3: New Approach in Developing NOSS (Source: Adapted from Kohlheyer (2000, p.18))

## Moving Towards Integration

The challenge of converting the separated NOSS-based training system and the NDTs into a fully integrated system comprises of several stages. Firstly, as highlighted previously, it is envisaged that before the integration can take place meaningfully, the NOSS-based system itself needs to be ‘updated’ into one that is compatible with today’s workplace demands. Secondly, the NDTs also needs to be re-aligned to make it more attuned to the Malaysian context and realities (this can be done simultaneously and not sequentially to the review of the NOSS-based training system). The final stage involves making several major decisions to ultimately realize the integration (refer Figure 4).

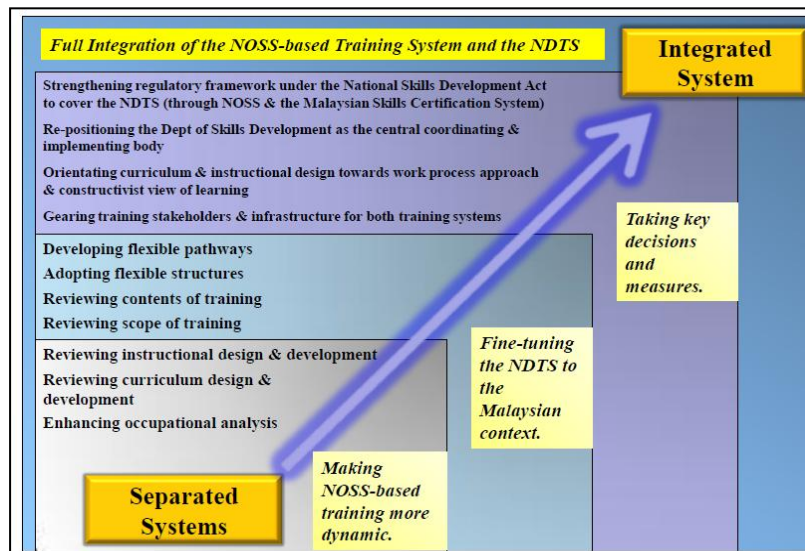


Figure 4: Moving Towards Full Integration

The ‘road to integration’ requires several major decisions to be made. At the policy level, the integrated system would be placed on a firmer foundation if it can be covered under the National Skills Development Act 2006 so that the crucial aspects of training such as competency standards-setting, assessment, certification, recognition, curriculum development and the delivery of training programmes can all be effectively facilitated and monitored. Without the need for going through the laborious process of amending the Act, it is possible to use its current provisions for the implementation of the NDTs by establishing new forms of the NOSS (with comprehensive occupational profiles) which then provide the curricular foundation for training programmes under the NDTs. Obviously the current practice of curriculum and instructional design (and development) for both training systems need to be reviewed and rationalized, amongst other reasons, to optimize expertise and resources as well as avoid wasteful duplication. In addition, new strategies and approaches have to be developed focusing on the unified system so that co-ordination and implementation (especially by the Department of Skills Development) are made clear to all stakeholders in the system.

## Conclusion

The study provides ample justifications for the integration of the NOSS-based training system and the NDTs. It has become obviously indefensible that the two training systems which share so much commonalities including co-existing in the *same* country, having *shared aims*, serving the *same* Malaysian industry, administered by the *same* public body, involving the *same* stakeholders, having *common* platform in most of their policy and delivery aspects, still remain well-separated.

The search for an integration framework involves, at its core, the identification of the *key requirements* that the framework should meet. Based on earlier discussions on the themes, issues and theses, the framework for an integrated skills training system in Malaysia should comprise of several defining features: (1) The basic *purpose* of fulfilling the changing skilled workforce needs of the Malaysian economy but having the ultimate goal of providing training and qualification opportunities for every persons in the country in all vocations; (2) Its *policy framework* is characterized by a common legislative and regulatory framework; a highly supportive human resource development policies at all levels of skilled workforce development; a single administrative structure and mechanism, co-ordinating and facilitating the system; as well as a unified system of assessment and national skills certification; (3) Its *delivery structure and mechanism* includes adopting a curriculum design that places equal emphasis on both outcomes and processes of training and learning; instructional approach that is basically constructivist in its theoretical underpinnings; and strong linkages and partnerships between all main stakeholders especially policy and implementing bodies, and the industry.

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