

Student Performance and Satisfaction in Continuous Learning Pathways in Dutch VET

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Abstract

An important trend in the Vocational Education and Training (VET) system in the Netherlands is the design of continuous learning pathways enclosing more than one school type level. These continuous learning pathways are characterized by different design formats. In this study, the relations between these design formats and student performance and satisfaction were examined. Five coordinators and 161 students of five so-called Green Lycea (GL) in the life sciences domain, in which the elements of the two successive educational levels (vmbo and mbo) were either separated or interwoven, participated. The conclusion can be drawn that this group of students benefits most from continuous learning pathways in which integration of elements of successive educational levels is realized.

Introduction and theoretical framework

In the Vocational Education and Training (VET) system of the Netherlands (and of many other countries inside and outside Europe), competence-based education (CBE) can be identified as leading paradigm for educational innovation (Van den Berg & De Bruijn, 2009; Biemans, Nieuwenhuis, Poell, Mulder, & Wesselink, 2004; Biemans, Wesselink, Gulikers, Schaafsma, Verstegen, & Mulder, 2009; Brockmann, Clarke, Méhout, & Winch, 2008; Mulder, Weigel, & Collins, 2007). In this regard, the concept of competence refers to the integration of knowledge, skills, and attitudes needed to perform adequately in specific professional situations (cf. Gonczi, 1994; Verhaeghe, Vanhoof, Valcke, & Van Petegem, 2011). This integrative approach of the concept of competence can be characterized as “comprehensive approach of competence” (Biemans et al., 2009; Delamare Le Deist & Winterton, 2005; Wesselink, De Jong, & Biemans, 2010). CBE implies creating inspiring, meaningful, and powerful learning trajectories and environments for students, in which they can develop their professional and personal competencies, being an important prerequisite for further education, employability, citizenship, and lifelong learning (Wesselink, Dekker-Groen, Biemans, & Mulder, 2010).

Another VET trend, stimulated by governmental policy in the Netherlands through experimental pilots (Dutch Ministry of Education, Culture and Science, 2005), is the design of continuous learning pathways to foster and streamline the development of students' competencies (Kuijpers, Badon Ghijben, Van Eijden, & Sprinkhuizen, 2010). Continuous learning pathways show for particular competence areas or subjects the curriculum continuity and sequence over a period of several to many years, enclosing more than one school or training type (Schoonenboom & Oud, 2006). Through continuous learning pathways, students' learning processes at the different school type levels are supposed to be more strongly related and attuned to each other than before, when the various successive school types were more like separate worlds to the students. Continuous learning pathways are supposed to result in:

- Substantial decrease of dropout rates;
- Increase of student qualification levels (more students with diplomas corresponding with higher educational levels);
- Increase of tailor-made learning pathways (reducing study time and preventing overlap);
- Higher student motivation and satisfaction;
- More efficient learning pathways with a high degree of involvement of the corresponding economic sectors (Dutch Ministry of Education, Culture and Science, 2005).

In the Dutch VET system, continuous learning pathways can connect different successive levels of the column: pre-vocational secondary education (vmbo), secondary vocational education (mbo), and/or higher (professional) education (hbo/wo). Some of these continuous learning pathways are especially designed to serve the learning needs of particular groups of students with specific characteristics. For example, the so-called Green Lyceum (GL) variants in the domain of vocational education in the life sciences, covering vmbo and mbo levels in five or six years instead of the regular eight years, are especially designed for students who are both characterized by relatively high cognitive levels and a preference for practical, profession-related assignments related to the "green" domain. These continuous learning pathways are characterized by different design formats in terms of underlying educational philosophy, curriculum set-up, educational design, etc. Up until now, it is unclear how these differences in design format are related to students' performance in these GL learning trajectories and to their satisfaction.

Therefore, in this study, the relations between these design formats and student performance and satisfaction were examined. Students in different study years participated in the research. This study was designed to answer the following research questions:

1. What differences can be found between various GL types in terms of student performance (and to what extent do these differences depend on study year)?
2. What differences can be found between various GL types in terms of student satisfaction (and to what extent do these differences depend on study year)?

Method

Participants

In this study, five Green Lycea (GL), which had started in 2007 and 2008, were studied. In total, 161 students (89 boys; 72 girls) in their first (n=85) or second (n=76) GL study year participated. Students were distributed over the five GL as follows: GL1: n=34; GL2: n=29; GL3: n=40; GL4: n=23; en GL5: n=35. Moreover, the coordinators of the five GL were questioned to collect information on the design format of their own Green Lyceum.

GL types

In Table 1, specific attention is given to the extent and way of integration of vmbo and mbo elements as essential and discriminating educational design characteristics of the GL. Two different design formats were identified: these two design formats could be labeled as Separate (GL2 en GL4; n=52) and Interwoven (GL1, GL3 en GL5; n=109), referring to the degree to which elements of the two educational levels vmbo and mbo were integrated in the educational program. This difference in degree of integration was the most striking difference between the various GL. For each of the GL, the choice for one of the two specific design formats had been made deliberately.

Table 1 Different GL design formats

GL characteristics	Separate	Interwoven
GL can be typified as a unique school type (different from regular vmbo – mbo)	No	Yes
Integration of mbo in vmbo	To a low extent	To a high extent
Sharp distinction between vmbo and mbo	To a high extent	To a low extent

Instruments

To measure the students' performance, their mean grade in the study year 2009-2010 was calculated, being their mean score over nine subjects taught at each Green Lyceum (Dutch language, English language, German language, mathematics, biology, physics and chemistry, human and society, economics, and professional orientation in the "green" domain). Their satisfaction was measured by a student questionnaire consisting of several underlying scales (cf. Rovers, Van der Neut, Teurlings, & Den Boer, 2010) with sufficient to good reliability coefficient values (Cronbach's Alpha): Motivation for School (2 items; $\alpha=0.70$), School Well-Being (15 items; $\alpha=0.82$) and School Satisfaction (3 items; $\alpha=0.74$). With each item, students had to indicate their own opinion on a 5-point Likert scale. For each scale, a mean score was calculated for each student (a high mean score corresponded with a high degree of student satisfaction and a low mean score with a low degree of satisfaction).

Data analysis

To answer the first research question, an ANOVA was carried out with the independent variables GL Type (Separate, Interwoven) and Study Year (1, 2) and the dependent variable students' Mean Grade 09-10.

For the second research question, a MANOVA was carried out with the same independent variables GL Type (Separate, Interwoven) and Study Year (1, 2) and students' mean scores on the student questionnaire scales Motivation for School, School Well-Being, and School Satisfaction as dependent variables.

Results

Student performance

With respect to student performance, a significant interaction effect was found between GL Type and Study Year ($F(1,156)=8.65$; $p\leq.005$). The mean grades of students in the first and in the second study year in the GL Type Interwoven were comparable. In the GL Type Separate, however, second year students had lower mean grades than first year students (see Figure 1).

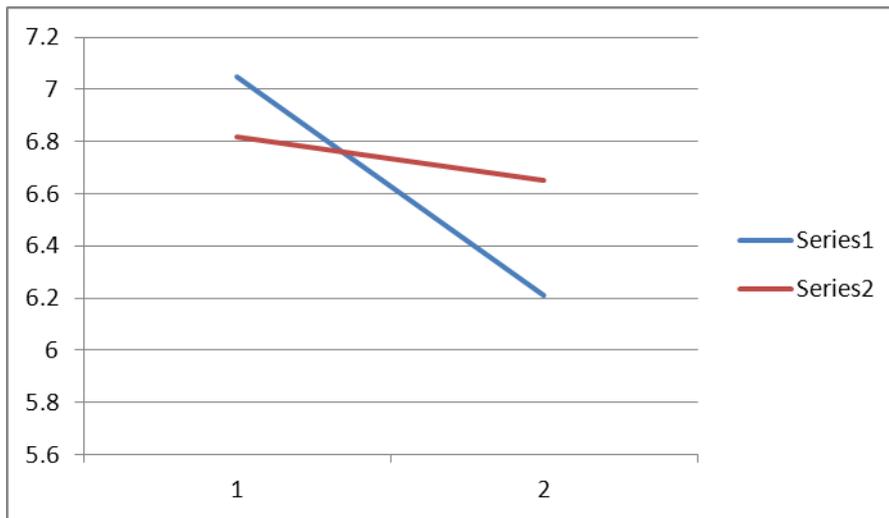


Figure 1: Mean grades of students in the first (1) and second (2) study year in GL Types Separate (Series1) and Interwoven (Series2).

Student satisfaction

With respect to the questionnaire data, significant main effects of GL Type were found for the scales School Well-Being ($F(1,148)=5.73$; $p\leq.05$), School Satisfaction ($F(1,148)=6.59$; $p\leq.01$), and -with a reservation- Motivation for School ($F(1,148)=2.90$; $p\leq.10$). Students in the GL Type Separate had lower mean satisfaction scores on the three scales than students in the GL Type Interwoven (see Table 3). It should be noted, however, that both groups of students had positive mean satisfaction scores (higher than 3). The interaction effects between GL Type and Study Year were not significant for School Well-Being ($F(1,148)=0.48$; $p=0.49$) and School Satisfaction ($F(1,148)=0.70$; $p=0.41$) and marginally significant for Motivation for School ($F(1,148)=2.90$; $p\leq.10$) (see Table 3).

Table 3: Mean scores on the scales Motivation for School, School Well-Being, and School Satisfaction of students in the first (1) and second (2) study year in GL Types Separate and Interwoven.

	Motivation for School	School Well-Being	School Satisfaction
	M	M	M
Separate	1	4.42	3.88
	2	3.75	3.64
	Total	4.11	3.77
Interwoven	1	4.42	4.27
	2	4.16	3.84
	Total	4.29	4.05
Total	1	4.42	4.14
	2	4.03	3.78
	Total	4.23	3.96

Conclusions

Based on the results of this study, the conclusion can be drawn that GL types that can be typified as a unique school type (different from regular vmbo – mbo) and are characterized by integration of mbo elements in vmbo (GL type Interwoven) lead to higher student satisfaction scores than GL types characterized by a sharp distinction between vmbo and mbo (GL type Separate). Moreover, in GL types Separate, students in the second study year have lower mean grades than students in the first study year. Thus, there are rather strong indications that this specific group of students benefits most from continuous learning pathways in which vmbo and mbo elements are interwoven. Learning pathways in which vmbo and mbo are separated appear to lead to lower satisfaction scores and to lower performance in the longer term. Thus, to serve the learning needs of these students, it appears to be beneficial to design continuous learning pathways that can be characterized as a special school type in which integration of elements of the two successive educational levels is realized.

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