

Are we doing something wrong? The relationship between schools' policies and practices and student dropout

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Abstract

This research investigated whether, and in what way schools are capable of reducing dropout rates through their policies and practices and students' attitudes. To measure the dropout risk, a questionnaire including both school- and personal student factors proved to be related to dropout, was constructed. The questionnaire was completed by 252 Dutch secondary vocational education students from the application- and media development track at four schools. The students had a mean age of $M = 18.62$, and 93% of the students was male, while only 7% female. The results showed a significant correlation between school factors and students' cynical attitude toward school. Two factors correlated strongest with the overall score on the questionnaire, which is interpreted as the dropout risk; the school factors rules and order. Schools should best focus on their practices regarding those factors in reducing their dropout rate. One of the four schools appeared to have a significant lower score on the dropout risk questionnaire, this difference might be attributed to their more progressive education system that appears to positively affect students' attitude and thereby reduces their dropout risk.

Keywords: dropout, vocational education, schools' policies and practices

Introduction

According to the European Commission (2015) and De Witte, Nicaise, Lavrijsen, Van Landeghem, Lamote and Van Damme (2013) early school leaving is linked to unemployment, social exclusion and poverty. The EU countries have committed to reduce the average share of early school leavers, aged 18-24 years, to less than 10% in 2020 (European Commission, 2014). Within the EU the Netherlands is the leading country in reducing early school leaving. In 2013, the Netherlands reduced early school leaving to 9.2% while the European average was 12% (European Commission, 2014; Dutch ministry of Education, Culture and Science, 2015). However, the Dutch Government has set a tighter target of reducing the number to 8% in 2020. In addition, another target was set that in 2016 no more than 25.000 new early school leavers are allowed. The secondary vocational education is an important aim in the Dutch Government's policy for reducing early school leaving (Bussemaker, 2013). Approximately 60% of all students are situated in the vocational education track (Meijers, 2008). The students enter primary vocational education at the age of 12 and move on to secondary vocational education at age 16 (Meijers, 2008). Students who do not finish secondary vocational education, and do not have a higher qualification than primary vocational education, are considered early school leavers (Dutch ministry of Education, Culture and Science, 2015). With so many of the Dutch students situated in the secondary vocational education system, it might be the most important target group of the Governmental policy against early school leaving (Bussemaker, 2013).

A lot of research has been done on the subject of early school leaving to define factors that can explain the withdrawal from school (Tanggaard, 2013). Various studies make use of different measurements for school dropout, based on a plurality of differential criteria underlying them (De Witte, Cabus, Thyssen, Groot, & Maassen van den Brink, 2013). For example, dropout can be permanent, when students leave the school system without a diploma. Dropout can also be temporary; for example, when students are temporarily not enrolled in school or change track. The act of dropping out is often forced by a particular event, but only because it occurs in conjunction with other factors. This means that a combination of factors always accounts for withdrawal (Beekhoven & Dekkers, 2005). Therefore, many studies take background and individual factors as well as structural factors into account to gain insight into which combination of factors contributes to dropout (De Witte, Cabus, et al., 2013).

Most research illustrates two models that provide reasons why students drop out from school (Tanggaard, 2013). The first model consists of individual student factors or

background factors like ethnicity, gender or socio-economic status. Student background factors were the main focus of early research on the topic of dropout and have been examined extensively (Tanggaard, 2013). The student background characteristics are found to account for a sizeable amount of 58% of the variance in dropout rates among schools (Rumberger & Palardy, 2005). From the perspective of school leaders, these findings implicate that half of the dropout rates can be attributed to factors that cannot be influenced by the school. There will always be at-risk students that have a higher chance to drop out, based on their individual and background characteristics. However, since the research conducted by Rumberger (1995), the schools' responsibilities for dropout are also taken into account (Tanggaard, 2013; De Witte, Cabus, et al., 2013).

Rumberger (1995) states that dropout rates may be related to the school structure, organization and atmosphere. The second model includes these factors on school and institutional level (Tanggaard, 2013). While school leaders and schools might have little power to influence the structural factors and school resources, such as the mean SES and student-teacher ratio, they do have control over the schools' policies and practices (Rumberger & Palardy, 2005). The structural and resource factors account for 73% of the variance, when they are added to the model with the student individual background factors; ethnicity, gender and socio-economic status (Rumberger & Palardy, 2005). On the other hand, Rumberger and Palardy (2005) indicate that school policies and practices accounted for almost 25% of the variability in school dropout, when controlled for the individual, structural, and resource factors. Thus, schools seem to have considerable control with regard to improving dropout rates, by adjusting their school policies and practices.

Different types of school policy factors that contribute to dropout are defined in literature. Research has shown that a well-developed career identity and career competencies from students are protective factors on dropout (Meijers, Kuijpers, & Gundy, 2013). Career identity is defined as the commitment a person has toward specific occupational activities of a specific career. Conversations about students' career competencies are important to develop career identity and create a higher learning motivation (Meijers et al., 2013). A professional in the workplace during an internship or the teacher of the course can provide these conversations to decrease the risk of the student dropping out (Meijers et al., 2013). Another important factor appears to be the classroom environment, as measured by the Classroom Environment Scale (CES) created by Moos and Trickett (1973). Three subscales from this scale, Rule Clarity, Teacher Control and Order and Organization, are proved to be linked to

dropout. In addition, an environment in which the rules are unclear and that lacks order increases the dropout risk (Fortin, Royer, Potvin, Marcotte, & Yergeau, 2004).

Research on student burn-out proved feelings of inadequacy and cynicism towards the school as predictors (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). Feelings of inadequacy is defined as feeling incapable of doing the schoolwork and having low expectations regarding the schoolwork. School-related cynicism is manifested in an indifferent or a distal attitude towards schoolwork in general, a loss of interest in one's academic work, and not seeing it as meaningful (Salmela-Aro et al., 2009). Continued research found these two burn-out factors to be predictors for dropout, even when controlled for several background factors, as well as a contribution from students' Grade Point Average (GPA) (Bask & Salmela-Aro, 2013).

Schools can reduce the risk of students dropping out through their policies and practices and by enhancing students' engagement in school (Rumberger & Lim, 2008). Finn and Rock (1997) indicate a difference between dropout and non-dropout students in their reported engagement in school. Engagement was measured by the amount of active participation in lessons or working hard, absenteeism or arriving late, being prepared for classes, getting into trouble at school and participation in extracurricular activities. The difference was proved significant on the following factors: working hard, attending class and getting into trouble (Finn & Rock, 1997). Early school leavers report that their experiences with the educational system are one of the reasons they dropped out (Meeuwisse, Severiens, & Born, 2010). Among others, because they were disappointed with the educational content, it did not match their expectations (Meeuwisse et al., 2010).

Student guidance programs that are introduced in schools intend to reduce dropout rates by prevention and early detection, but the programs initiated in secondary vocational education in the Netherlands tend to disappear a few years after their introduction (Meijers, 2008). Despite the short-term intervention, the results were promising. Students experienced positive effects and gained self-trust, self-efficacy and insight in their own cognitive weaknesses (Meijers, 2008). Discussions about career opportunities, providing information and emotional support are proved to be important tasks of mentors (Meijers, 2008). On the level of school organization, mentoring and coaching are effective interventions to reduce the dropout rate (De Witte & Cabus, 2012; Tas, Selvitopu, Bora, & Demirkaya, 2013). In 2002, the Dutch government provided schools with several regional interventions they were supposed to implement under guidance of their dropout prevention policy (De Witte & Cabus, 2012). When controlled for the factors of student and neighborhood characteristics, most of

the policy interventions did not show significant negative correlations with individual dropout. Only the interventions that are difficult to implement overnight and require a change process showed significant results. One of these interventions is mentoring and coaching (De Witte & Cabus, 2012). Mentoring and coaching is described by De Witte and Cabus (2012) as matching students with a coach from public or private organization. However, Tas and colleagues (2013) indicate that students reported poor communication with the guidance services and some students were not even aware of the guidance services provided in their school. In addition, students think it is unnecessary to talk with a counselor or mentor, especially when they already decided to dropout (Tas et al., 2013). It is, therefore, important that schools accentuate the function and possibilities of student guidance services (Tas et al., 2013).

To complement former research, this research investigates whether, and in what way, schools' policies and practices can affect students' attitudes to eventually reduce dropout rates, and to determine the strongest contributing factors that can explain dropout. Subsequently, differences between schools that provide the specific track of interest will be analyzed. This leads to three research questions. The first question is: "Are students' perceptions related to schools' policies and practices?" The second question is: "Which factors contribute strongest to the dropout risk of students?" The third question is: "Do these factors result in significant differences between the secondary vocational education schools that offer the application- and media development track?"

Method

Participants

The students from four secondary vocational education schools with the application- and media development track will voluntarily participate in the study. In total, the sample consists of $n = 252$ students. Two schools ('school two' and 'school four') are located in the east of the Netherlands, with $n = 36$ and $n = 10$ respectively. One school ('school one') is located in the south of the Netherlands with $n = 60$ students. The last school ('school three') is located in the middle of the Netherlands, with $n = 145$. The students are between 16 and 39 years old, with $M = 18.62$ and $SD = 2.46$. It is stated that 47.3% of the boys in Dutch secondary vocational education follow a technical track, while only 7.9% of the girls follow this track (Zwaneveld & De Bie, 2008). In this research a similar distribution is found; from 248 respondents on the question regarding gender, 231 are male students and 17 are female students. For the pilot test $n = 8$ students from another educational track, building engineering, will be asked to complete the questionnaire to check if they understand the

questions and if the right language level is used.

Instruments

To measure the dropout risk of an educational track, a questionnaire consisting of eight factors will be constructed. These factors will be measured by items that are retrieved from other research and will be explained in this part. All items in the questionnaire are translated into Dutch and adjusted to the participants of this study, for example by using appropriate and understandable language.

Firstly, the general characteristics of the respondents will be collected. These include gender, age, Grade Point Average (GPA) at a 10-point scale, and the school and main track the student attends.

Five factors concerning policies and practices are derived from literature and form the school subscale, examples of items on those factors can be found in Table 1. Mentoring activities is one of these factors and is the variable 'mentoring' in this research. It is measured with three items inspired by Meijers' (2008) qualitative research.

Meeting students' expectations is measured with two questions inspired by Meeuwisse et al. (2010). Their questions are directed towards wrong study choices and uninteresting courses. Furthermore, in the qualitative interviews that were held during this study it became clear that students dropped out because the educational content differed from their expectations. This variable is labeled 'expectations'.

Career guidance is measured with two items inspired by Meijers et al. (2013). They measure the students' career identity and the extent to which career dialogues take place. In this research they represent the variable 'career'.

The last factors concerning schools' policies and practices are derived from the Classroom Environment Scale, since the original scale is not available, this research will use the factors Rule Emphasis and Order and Organization, that were defined by a factor analysis on the CES (Trickett & Quinlan, 1979). The factor Order and Organization includes most of the items of the original Order and Organization subscale (Trickett & Quinlan, 1979), which is the variable 'order' in the present research. In the factor Rule Emphasis the original subscales Rule Clarity and Teacher Control are combined, this forms the variable 'rules' with five items. Therefore, for this research it is assumed that by using the two factors found by Trickett and Quinlan (1979) the original subscales lying behind these factors and their relation to dropout are covered.

Examples of items for policies and practices

Scale	Consists of	Measured by	Example item
Mentoring	Three items	5-point Likert scale	My mentor informs me about my program
Expectations	Two items	5-point Likert scale	This program does not meet my expectations
Career	Two items	5-point Likert scale	My heart is in the work I'm learning to do
Order	Four items	True/false	The teacher often has to tell students to calm down
Rules	Five items	True/false	There is a clear set of rules students have to follow

Three factors regarding the students are derived from literature and form the personal subscale, examples of items measuring those factors can be found in Table 2. One of these factors is cynicism. Cynicism towards school is measured by the subscale cynicism from the School Burnout Inventory from Salmela-Aro et al. (2009) and represents the variable 'cynicism' in this research.

Another factor, feelings of inadequacy, is measured by two items from the School Burnout Inventory, as used by Bask and Salmela-Aro (2013). In the present research, they constitute the variable 'inadequacy'.

The last factor concerning students' perception is engagement. Finn and Rock (1997) show a significant difference in self-reported engagement in school between dropout and non-dropout students. The factors that will be used in the present research are Attend and Trouble. The factor Attend was measured on the self-report subjects about missing school, being late for school and cutting classes. The factor Trouble was measured with three self-report subjects about the frequency of getting into fights, getting into trouble for not following rules and parents being contacted about behavior problems. In this research both factors will be measured by three items, which are derived from the before mentioned subjects. Together, those six items represent the variable 'engagement'.

Table 2

Examples of items for student factors

Scale	Consists of	Measured by	Example item
Cynicism	Three items	5-point Likert scale	I'm losing interest in my schoolwork
Inadequacy	Two items	5-point Likert scale	I have the feeling that I lack the ability to perform well in this program
Engagement	Six items	5-point Likert scale	How often do you get into trouble for not following the rules?

Design and procedure

The design of the study is a quantitative data gathering and analysis that will answer an explanatory research question. However, the research is preceded by a short explorative qualitative interview part for the development of the survey. The factors that were found in other research will be strengthened by information reported by dropout students from the game and application development track at school three. Four convenience interviews with male students that withdrew from the game design and application vocational track at this school were conducted. The leading question in the interviews was: *"How did you change from a student starting the game design and application development track to a dropout student?"*.

The dropout risk survey consisting of eight factors will be used to collect data from the participants. The survey will take on the form of an online questionnaire. The first- and second-year students at the participating schools will be asked to fill in the online questionnaire using their laptops, which they always bring to class. By visiting the schools, a higher response rate is expected since the students will have time during the lessons to complete the online questionnaire.

Results

Cronbach's alpha for the questionnaire was .76. Although this can be considered adequate for research purposes, the item-total statistics indicated the possibility of establishing an $\alpha = .77$ if two items were removed. Regarding this minimal increase and the content of those items, which is interpreted as a valuable contribution to the questionnaire, they were not deleted.

To investigate whether the eight theoretical factors could also be distinguished in this set of data, a confirmative factor analysis was conducted. Eight factors with Eigenvalues

exceeding one were identified. In total, these factors accounted for around 60% of the variance in the questionnaire data. The first five factors could clearly be interpreted as the five theoretical factors; cynicism, mentoring, order, engagement and rules. However, no suitable interpretation could be found for the three remaining factors.

Cronbach's alpha for the eight-factor solution was .61, the alphas from the separate theoretical factors varied widely. Cynicism has an alpha of $\alpha = .82$, $\alpha = .72$ for mentoring, $\alpha = .63$ for order, $\alpha = .72$ for engagement, $\alpha = .59$ for rules, $\alpha = .39$ for inadequacy, $\alpha = .39$ for expectations, and $\alpha = .04$ for career. The Cronbach's alphas from the last three factors are very low, so they are not reliable. Also these factors were not identified in the interpretation of the factor analysis. For this reason, the decision was made to remove those three factors from the data.

Correlation was used to assess the relationship between students' perceptions and schools' policies and practices. Prior to calculating r , the assumptions of normality, linearity and homoscedasticity were assessed. Linearity was found to be supported; the difference in r^2 of a linear and quadratic equation was less than 5% for every pair of variables. Normality was tested with the Shapiro-Wilk test. For every factor, W was significant, which indicates that the data are not normally distributed. A quick visual inspection of the scatterplots indicated the presence of heteroscedastic relationships among the variables. Thus, the assumptions of normality and homoscedasticity were violated. Instead of Pearson's product-moment correlation coefficient, Spearman's rho had to be used.

Spearman's rho indicated the presence of a small positive correlation between mean score on the school scale and mean score on the personal scale, $r_s = .26$, $p < .001$, two-tailed, $N = 252$. Spearman's rho was also calculated for the six separate pairs of variables, to assess the relationship of the variables cynicism and engagement from the personal scale with the variables mentoring, order and rules from the school scale. Cynicism appeared to correlate weakly with two out of three variables from the school scale. Spearman's rho indicated a significant correlation between cynicism and order, $r_s = .27$, $p < .001$, two-tailed, $N = 252$, and a significant correlation between cynicism and rules, $r_s = .22$, $p < .001$, two-tailed, $N = 252$. Spearman's rho indicated no significant correlation between engagement and the three variables from the school scale. Which means no relation was found between students' engagement and the schools' policies and practices mentoring, order and rules, while there appeared to be a small association between students' cynicism and the schools' policies and practices.

In investigating the correlations between the overall score on the questionnaire and the mean scores on the five factors, Spearman's rho indicated a significant positive correlation for every factor. Two of the correlations were remarkably higher than the others; rule correlated very strong with the total score, $r_s = .80$, $p < .001$, two-tailed, $N = 252$, and order correlated strong with the overall score, $r_s = .75$, $p < .001$, two-tailed, $N = 252$. So those two factors appeared to have the strongest relation with the overall score on the dropout questionnaire.

A one-way between groups analysis of variance (ANOVA) was used to investigate the impact of the variable 'school' on the scores on the five factors. For the ANOVAs, the variables rules and order were transformed from nominal into scale measurement. Inspection of the skewness, kurtosis and Shapiro-Wilk indicated that the assumption of normality was violated; four out of five factors showed z_s and z_k values out of the normal range of ± 1.96 . Shapiro-Wilk statistics indicated significant scores on each factor, which implies that the distribution is not normal. Levene's statistics was significant on two out of five factors; cynicism, $F(3,144) = 5.18$, $p = .002$, and rules, $F(3,144) = 4.76$, $p = .003$. Thus, the assumption of homogeneity of variance was violated for those two factors.

The one-way ANOVAs were statistically significant for cynicism, mentoring, order, and rules as shown in Table 3, indicating that there are significant differences in these factors between the four schools. The effect sizes for those four factors were found to be large ($\eta^2 = .11$, $\eta^2 = .14$, $\eta^2 = .15$, $\eta^2 = .20$ respectively). However, the ANOVAs did not show a significant effect for engagement, as also shown in Table 3.

Table 3

One-way ANOVAs of factor by school

Factor	Source	df	<i>F</i>	<i>p</i>	η^2
Cynicism	Between Groups	3	5.80	.001	.11
	Within Groups	144			
	Total	147			
Mentoring	Between Groups	3	7.92	.000	.14
	Within Groups	144			
	Total	147			
Engagement	Between Groups	3	.49	.740	.01
	Within Groups	144			
	Total	147			

Order	Between Groups	3	8.38	.000	.15
	Within Groups	144			
	Total	147			
Rules	Between Groups	3	12.25	.000	.20
	Within Groups	144			
	Total	147			

Note. $\alpha = .05$

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that school number two ($M = 43.64$, $SD = 12.19$) had a significantly lower overall score on the questionnaire, which is interpreted as dropout risk, than schools one, three, and four ($M = 52.82$, $SD = 11.98$; $M = 57.86$, $SD = 11.13$; $M = 54.70$, $SD = 11.24$ respectively). There were no significant differences among those other three schools. Effect sizes for the comparisons of school two with one, three, and four were $d = 0.77$, 1.28 and 0.98 respectively, which are all large effects.

Discussion

Correlation between the personal scale and the school scale was found to be significant, which indicates that students' perceptions are related to schools' policies and practices. The hypothesis that schools' policies and practices are linked to students' attitudes, which are proved to be related to dropout, by that means seems to be supported. However, further investigation of the correlation showed a disparity in the personal scale. Cynicism correlates significantly with two factors from the school scale. So schools' policies and practices appear to be weakly related to the amount of cynicism students experience toward school, but the other personal factor, engagement, did not show a significant correlation with the factors from the school scale. This implies schools should not aim at encouraging students' engagement in school to reduce their dropout rates, but better try to change the cynical attitudes of students. Furthermore, engagement was the only factor the schools did not significantly differ on, as proved by the one-way between groups ANOVA. This means that there was less variance in scores on engagement than on the other factors. This conclusion is supported by other parts of the data, the range of scores from engagement is smaller than the range of scores from the other factors.

The five factors all showed a significant correlation with the overall score, and thereby with the dropout risk, this is in line with findings in previous research, where a relationship between engagement, order, rules, mentoring, and cynicism, and dropout was proved (Finn & Rock, 1997; Fortin, Royer, Potvin, Marcotte, & Yergeau, 2004; De Witte & Cabus, 2012;

Bask & Salmela-Aro, 2013). The factors order and rules stand out with their effect sizes, which are remarkably higher than the effect sizes from the correlations of the other factors with the dropout risk. This implies that there are two highly important indicators for dropout risk; clearness of the rules at school and to what extent the teacher exercises control with them, and organisation of lessons and the teacher maintaining order in class. So, the strongest contributing factors are factors from the schools' policies and practices subscale. This finding supports the outcome of research from Rumberger and Palardy (2005), which indicates that schools seem to have the ability to exercise considerable control over their dropout rate through their policies and practices. This implies that schools can best try to reduce their dropout rates by making sure the rules are clear and that teachers make consequent use of those rules to maintain order in class and create well organized courses.

The four examined secondary vocational education schools differed significantly on four out of five factors; cynicism, mentoring, order, and rules. Post hoc analysis was conducted to be able to gain insight in those differences. School number two appeared to be the only school that differed significantly from the other schools, it has a significant and strongly lower dropout risk score than the other schools. This indicates that these students have a more positive attitude and impression toward their school. This significant effect could be attributed to the fact that this school has just implemented a new type of education, which distinguishes them from the other three schools with a more traditional type of education. It seems that this way of arranging education can help to reduce the dropout rate, so this educational system would be recommended to other secondary vocational education schools. However, there is no information about the actual dropout rates from before and after the change, nor is there information from the other three schools. Therefore, no hard conclusions can be drawn from this information. The expectation would be that school number two has the lowest actual dropout rate, because that is indicated by the dropout risk questionnaire. Also, it should be taken into account that the assumption of normality was harmed. In subsequent research, it is recommended to identify actual dropout rates, preferably from various times of measurement. In that way, a better comparison can be made, and conclusions will be better founded. Also, with information about the dropout rates a better answer might have been given to the second research question. The five factors show a significant correlation with the overall score, which is obvious, because these factors form the questionnaire. With information about dropout rates, a comparison could have been made with the overall score on the questionnaire, to make sure this overall score is an impression of the actual dropout rate.

Thus, it seems that there is a relationship between the policies and practices from secondary vocational education schools and the amount of cynicism a student has toward school. Cynicism is a risk factor concerning withdrawal from school (Bask & Salmela-Aro, 2013), so it can be worthwhile for schools to make an effort to improve students' perception of school by changing their policies and practices. The present research identified two highly important indicators for dropout; the school factors order and rules. Those would be the two policies and practices vocational education schools can best try to improve in an attempt to reduce their dropout rate. Another possible intervention is changing the educational system into a more progressive one, like school number two. However, no causal relationship can be concluded from the results of the present research. Therefore, further investigation of the relationships shown in this research is needed to be able to assess causality, and to make clearer recommendations to secondary vocational education schools concerning the reduction of their dropout rate.

This research could have been better in some areas. For example, in order to maintain sufficient validity of the questionnaire, items from questionnaires used in previous research have been retained the same as much as possible. Which meant that some items in the dropout risk questionnaire from the present research were rated on a 5-point Likert scale, while others were true/false questions. As a consequence, the factors with two answering options showed more spreading in the data, those were the factors order and rules. It is possible that this affected the analyses and that order and rules are incorrectly appointed as the most important indicators for dropout. So a recommendation for subsequent research would be to make consequent use of one scale.

Also, two online questionnaires were opened, one was the official questionnaire for the students to complete, the other one was opened for the teachers to get an impression of the questionnaire their students were going to complete. Unfortunately, this distinction was unclear for one of the schools. As a result, the teachers, as well as the students completed the teacher-questionnaire. The data from the students had to be transferred into the student-questionnaire, this process has probably gone slightly wrong, because a few respondents have a strikingly higher age. Possibly, those respondents are teachers. Their answers are not subject of research and may have had an undesirable influence on the results. Subsequent research should be aware of the risks of an online questionnaire, to prevent their research from those kind of ambiguities.

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