A LOW-COST INTERVENTION FOR REDUCING COSTS FROM HIGHER EDUCATION DROPOUT: THE DROPOUT REDUCTION MODEL

Ph.D. Student Ran BAR-AM
West University of Timisoara, Romania
Email: ran@bar-am.com

Abstract: *National investment in education improves national economic prosperity and contributing to development. In countries where there is significant investment in higher education at the national level, student dropout from higher education represents a major source of financial loss. There are also losses at the institutional level. Although the high cost of dropout is understood, institutions have failed to take responsibility for dropout reduction, owing in part to the additional cost associated with dropout prevention. To address this issue, we present, on the basis of theoretical and empirical literature, the Dropout Reduction Model. The Dropout Reduction Model focuses on institutional responsibility for (a) student commitment, (b) social support, and (c) institutional support and provides strategies for the improvement of each of these three values. Additionally, we propose a concrete intervention based on the Dropout Reduction Model, by which institutions can effect reductions in dropout rate without incurring significant costs. The intervention focuses on policy and pedagogy changes with minimal required inputs, thereby enabling institutions to reduce sunk costs from dropout without significant budgetary strain.*

Keywords. *Higher education, student dropout, educational intervention, Dropout Reduction Model, social support, institutional support, student commitment.*

1. Introduction

National investment in education, especially higher education, brings about reduced unemployment and higher earnings over entire working lives, thereby improving national economic prosperity and contributing to development (Aina, 2013). In past generations, the existence of a pool of uneducated or undereducated citizens was tolerated, and individuals with little or no formal schooling provided what was perceived as an essential unskilled labor pool for industrially and agriculturally fueled economies. Today, changes in the labor market make an inadequately prepared workforce a growing concern and contribute to global inequality (Irby, Mawhinney and Thomas, 2013).

In countries where there is significant investment in higher education at the national level, student dropout from higher education represents a major source of financial loss. There are also losses at the institutional level, in terms of funds used for recruiting dropped-out students, tuition losses, and opportunity cost from students who were turned away but who, if admitted in place of dropped-out students, may have persisted to graduation. When dropout rates are relatively low, these losses may be of minimal concern. However, in areas with problematically high dropout rates, the adverse financial impact of student dropout can be significant.

In Israel, for example, the Committee for Planning and Budgeting of the Higher Education Council subsidizes every student with 20,000 ILS (just over $5,000) on average (Israel Central Bureau of Statistics, 2012). There are 240,000 students presently studying in Israeli colleges and universities, and approximately 25% of these students will drop out, never graduating. Therefore, Israel invests in students approximately $300 million annually (about 0.1% of Israel's GDP) without return. Loss of tuition accounts for an $80 million annual cost to Israeli Institutions (Israel Central Bureau of Statistics, 2012). Therefore, reducing dropout is of economic importance at both the institutional and national levels.

Although the high cost of dropout is well understood, many institutions focus their dropout prevention efforts on prospective students, attempting to recruit and admit students who are likely to persist to graduation. Indeed, a large body of research demonstrates that many of the factors that predict dropout are student factors such as financial difficulty, age,

and personality characteristics (Alarcon and Edwards, 2013; Gairín et al., 2014; Murray, 2014; Padgett et al., 2010; Silvernail et al., 2011). This may lead institutions to avoid efforts to reduce dropout among current students, under the assumption that dropout is primarily predicted by factors outside the institution's control. Such an assumption leads to the conclusion that any costs toward preventing dropout among admitted students are not likely to result in returns, owing to the limited capacity of institutions to influence the personal variables that relate to dropout.

Less research has examined the effect of institutional factors on dropout in higher education. However, important theoretical work has begun to establish a potential link between institutional structure (i.e., administrative policy, curriculum, and faculty) and dropout prevention. Drawing on this theoretical work, we developed the Dropout Reduction Model (DRM), which emphasizes institutional responsibility in dropout reduction. To address institutional concerns about the cost of dropout prevention strategies, a low- or no-cost intervention is also presented that has the DRM as its foundation. The remainder of the article is organized as follows: first, we present a background of higher education dropout and review theoretical models and empirical research on dropout prevention. Next, we present the DRM and justify each of its three dimensions: student commitment, social support, and institutional support. Finally, we propose in detail an intervention based on the DRM that can be implemented with little or no additional budget. A conclusion section follows.

2. Background and Literature Review

In this section, we present a brief background of higher education dropout, including the antecedent factors of dropout and existing models and approaches to dropout reduction.

Defining Dropout

The complicated nature of dropout makes accurate definitions both necessary and difficult. There is no consensus on the definition of a higher education institution dropout, nor is there a standard method for computing of dropout rate (Rodríguez-Gómez et al., 2014; Stratton and Wetzel, 2013). Dropout is defined by Larsen et al. (2013) as withdrawal from a university degree program before it has been completed. Common terms used to describe university dropout from a student perspective are: dropout, departure, withdrawal, failure, non-continuance, and non-completion (Larsen et al., 2013:32).

According to Rodríguez-Gómez et al., (2014) the dropout rate is an indicator of a complex phenomenon, and there is no consensus on its significance. Because universities lack systematized, univocal methods for collecting student dropout data, measuring the dropout rate is problematic (Rodríguez-Gómez et al., 2014). Formulas used for analysing dropout differ among countries, and it is therefore quite difficult to perform comparative studies between them (Rodríguez-Gómez et al., 2014). Furthermore, the concept of dropout is conceived differently in different countries, where terminology is assigned with varying connotations depending on the context (Rodríguez -Gómez et al., 2014).

Since the 1990s, the student dropout rate has been quantified and used as a performance indicator, and has been a widely discussed topic among academic authorities in the European Union (EU), within each country and institution (Gairín et al., 2014). The dropout issue has broad dimensions, such as the economic cost of university studies available to the majority of students and the inefficient use of resources (Gairín et al., 2014). Additionally, it should be remembered that reaching a conceptual definition of university dropout is a complex task (Gairín et al., 2014). It should also be remembered that a conceptual definition of university dropout is hard to measure because it requires having suitable and precise institutional data, collected systematically over a certain period

of time (Gairín et al., 2014). To fully understand the phenomenon of dropout, it is necessary, to consider the different types of dropout: voluntary, involuntary, temporary, permanent, initial, provisional, definite and the relationship (or lack of one) between dropping out and academic failure, or dissatisfaction with the quality of the student's experience (Gairín et al., 2014). As we will see in the following sections, institutional responsibility for social and institutional support can provide students with the integration required to prevent dropout of all types.

Theoretical Models of Dropout and Retention

This section reviews the main models proposed in this field: the Student Integration Model (Tinto, 1975) and the Student Attrition Model (Bean, 1980). The latter builds on the former. Next, we review institutional support models of dropout. The Dropout Reduction Model combines the strengths of each model and attempts to overcome the weaknesses. The Dropout Reduction Model is described in a later section.

Tinto's Student Integration Model. One of the most commonly cited models in student retention literature is the Student Integration Model (Tinto, 1975). Tinto divided the student's institutional experiences into two components: an academic component, consisting of academic performance and interaction with faculty or staff members in the university, and a social component, consisting of extracurricular activities and peer group interactions. The author determined that the extent that these forces successfully integrated with each other could determine whether students persist with their studies or leave the university (Tinto, 1975). Therefore, attrition is concerned with a decision-making process that fits into a competing risks paradigm, where a variety of socioeconomic forces pull the student towards one or another mutually exclusive set of possible outcomes (Murray, 2014).

According to Tinto, the tendency to leave higher education before graduating is due to lack of involvement. Indeed, research supports that lack of involvement is a major cause leading to failure (Jenkins-Guarnieri et al., 2015). Gray, Vitak, Easton, and Ellison (2013) made a similar claim, stating that the smaller are the chances for a successful integration in society, the bigger is the failure in schooling processes.

According to Tinto's model, coping with the problem of dropping out from the educational system requires the right synthesis between students' involvement and the routine of an academic institution. This synthesis reduces a student's chances of leaving higher education and increases his chances of staying and graduating (Danielak et al., 2014). Gray et al. (2013) have maintained that academic and social integration contributes, not only to persistence, but also to the quality of learning.

Tinto's model has generated many empirical studies (for a review see Braxton, Doyle, and Hartley, 2013). Though it has had a significant influence on retention strategies in several countries (Lindsay and Williams, 2015), the model has also been widely criticized and subjected to many revisions. In a seminal work, Barefoot (2004) delineated three points of criticism. First, the relative importance of academic integration as compared to social integration for different types of students is not addressed. Secondly, the model does not incorporate all the factors required to understand why students drop out, particularly those pertaining to non-traditional students. A third important question is whether today's students can be expected to achieve integration. It may be argued that it is both unrealistic and unreasonable to expect many of today's students to break from their culture and families of origin in order to achieve conformity with college norms and expectations (Rissanen, Tirri, and Kuusisto, 2015).

Although the Student Integration Model provides many useful insights, a significant drawback is its lack of attention to external factors. This is particularly

important in the Israeli context, in which many forces affect students' motivation and ability to persist and pursue non-compulsory education to completion. Extrinsic factors also influence a student's integration in higher education. This means that, although the model can determine a student's success, social support is not limited to a student's institutional surroundings, but also is provided by a student's personal surroundings, which affect academic achievements.

Several revisions of Tinto's (1975) model have been suggested. One of the most prominent revisions, offered by Bean (1980), emerged as an alternative model. Nevertheless, Tinto's model has been accepted as the most empirically tested model, and has become recognized as being most useful for explaining the causes of student departure from higher education (Alhassan, 2012).

Bean's Student Attrition Model. The Student Attrition Model (Bean, 1980) suggests that variables such as a student's higher education experience, future educational goals, and financial ability affect how a student will integrate into the college community. Tinto (1975) did not recognize the importance of factors outside of university. Bean's (1980) model, by contrast, expands Tinto's model by focusing on the importance of integration into the student community. Bean's model is different in that it includes both environmental variables and a student's intentions.

Bean's Student Attrition Model is more comprehensive than Tinto's Student Integration Model in that it explicitly incorporates external factors, such as employment opportunities. Bean's theory also stresses the importance of behavioural intentions (whether a student intends to stay or leave) as predictors of persistence (Bean, 1980). Bean (1980) assumed that behavioural intentions are shaped by a process in which beliefs shape attitudes, and attitudes, in turn, shape behavioural intents. Students' beliefs are affected by their own experiences with the different components of an institution (e.g., academic quality, courses and friends). Bean's model has also acknowledged that attitudes and decisions may be largely affected by factors external to the institution (Bean, 1980).

While adding important elements to the dropping out model, the Student Attrition Model is not without flaws. Indeed, useful insights and thinking directions can be drawn from both theories. Both Tinto's and Bean's models lack an emphasis on the responsibility of institutions to prevent dropout by creating environments conducive to student retention. In the next paragraphs, we discuss institutional responsibility for dropout from a theoretical perspective.

Institutional responsibility. In support of Tinto's (1975) approach, psychological models emphasize that dropping out is primarily related to a student's specific personality, as well as to his interest and skills for coping with academic and social tasks of the higher education institution (Omidi et al., 2012). Thus, a student's integration in the academic institution is a sole responsibility of the student, while social models stress the influence of an academic institution on human behaviour.

Tierney (1992) explained that the dropping out phenomenon does not depend completely on the student, but is largely and directly related to the way an academic institution functions. For this reason, a student's success or failure becomes part of a social process (Lindsay and Williams, 2015). Tierney (1992) claimed that Tinto's and Bean's models ignore one of the major roles of the academic institution: to assist an individual's integration. Tierney suggested that higher education management or faculty members involved in campus remediation efforts need to act less like emergency room paramedics and more like preventive medicine physicians. Approaching the problem of student dropout from a cultural point of view, Tierney suggested a framework in which students hold onto, and affirm, their own identities, while simultaneously functioning and succeeding within the dominant culture of schooling.

Tierney (1997) maintained that colleges and universities need to modify the cultures of their institutions to accommodate individuals or groups of students who are at risk of dropping out. In this way, Tierney's model is one of institutional responsibility. Institutions can take responsibility for dropout either by supporting student integration in the campus or through isolation and neutralization of negative forces relates to factors that prevent a student from investing most of his energy in learning and persistence in higher education. These factors include emotional detachment, fear of failure, boredom, financial problems, workload, family commitment or social rejection (Braxton et al., 2013).

Chen (2012) identified the causes of failure in academic institutions specifically in the structural factors of the academic system. According to him, causes for failure include higher education systems support passive learning methods that do not motivate students to learn; irrelevant curricula that do not let students progress as they would like to; and inappropriate screening and overcrowded classrooms that do not support active participation.

Nwogu and Esobhawan (2014) claimed that teachers with the right established qualifications will improve academic performance and bring about a reduction in student dropout, and that it is worthwhile to properly equip teachers with the new ideas and methods. In most studies, however, institutional factors are pushed to the margins, and the elements included in it are not ascribed great significance in terms of students' learning ability and persistence in higher education. Such instructor development is an important component of the DRM intervention proposed below. Before describing the Dropout Reduction Model, however, we turn to a brief review of empirical literature related to dropout and its antecedents.

3. Empirical Research on Dropout and its Antecedents

Researchers explain dropout using internal factors (e.g., motivation, success or failure in school) and external factors (e.g., economic status, organizational characteristics). The primary student factors found to influence dropout (Alarcon & Edwards, 2013; Anderson, 1985; Bean, 1982; Gairín et al., 2014; Lum, 2002; Murray, 2014; Padgett et al., 2010; Reyhner, 2006; Silvernail et al., 2011; Tierney, 1992; Tinto, 1975) are summarized as follows:

- dissatisfaction with the quality of the academic experience
- family and work responsibilities
- economic difficulties
- demographic characteristics: age, gender, race, financial status
- cultural background
- level of academic integration
- living conditions
- personal motivation and self-confidence
- lack of academic preparedness
- incorrect choice of course
- pursuit of a more attractive opportunity

Only a few studies have addressed the organizational aspects under the responsibility of the higher education institutions and their responsibility for preventing dropping out. Institutional factors antecedent to dropout are as follows:

- pedagogical style;
- school and class size;
- instructor relationships;
- institutional openness;

- curriculum relevance;
- interaction with staff and faculty.

Research on the key factors related to student dropout, especially as they pertain the institutional responsibility, are reviewed in the following paragraphs.

Academic factors. A considerable extent of student difficulties in higher education is due to inadequate preparation in high school. Raviv (2009) reported that, in one college in Israel, the average score of students in the first semester of first year in reading academic papers and writing was extremely low, indicating a lack of significant learning tools with which students begin their higher education. Research indicates that one of the important factors of students' dropout rate is the subject studied at university, as well as the secondary school grades; the dropout rate is higher among students in engineering (Paura and Arhipova, 2014).

Several studies, such as those conducted by Meyer and Marx (2014) and Aguiar, Chawla, Brockman, Ambrose, and Goodrich, 2014), identify having to repeat courses as a significant predictor of engineering students dropping out from higher education. The conclusions of these studies are that poor academic achievement, low self-expectations, low grades, low test scores, and course failure all contribute to dropping out from higher education.

Furthermore, it was found that students' performance during the first year affects their decision to continue studying (Chies et al., 2014). Relatedly, an inadequate learning climate may lead to dropout (Pocock, 2012). Negative learning climates create alienation and prevent students from calmly focusing on their studies. While students are preoccupied with the negative learning climate, they cannot advance in their studies and are discouraged to the point of considering leaving higher education either or moving to another institution (Pocock, 2012).

Student integration. Making students feel more involved and emotionally secure is essential for high retention rates in higher education. It has been found that empowerment of students contributes to the completion of a college or a university and the fulfilment of educational aspirations (Beauvais, Stewart, DeNisco, and Beauvais, 2014).

The decision to drop out is a complex one involving a set of personal and contextual circumstances (Gairín et al., 2014). Being a part of an academic environment and the social status associated with this environment can be a very important component that influences a student's attitude regarding learning and working options. Such an environment entails civic engagement and familiarity with current environment (Jenkins-Guarnieri et al., 2015).

Studies (e.g., Walker, 2012) have revealed that one of the important factors in students' successful coping with higher education challenges and their completion of their studies is their involvement in an institution's activities. This activity, carried out on a voluntary basis and linked to a student's fields of interest, creates a greater interest in studying. For this reason the graduation rate among involved students is higher than among students who are not involved in the academic institution beyond lessons per se.

Student-teacher interaction. Learning style influences to a great extent student attrition and dropout rates. Their preferences for a specific learning style is in many cases related to the reason students attend a higher education institution. Baker and Robnett (2012) have demonstrated the importance of social support for student retention. Jenkins, Belanger, Connally, Boals, and Durón (2013) provided support for this assertion. In their study, Jenkins et al. (2013) showed that students at-risk of dropping at out had less social support than those with less risk.

Success in higher education of at-risk students has been found in several studies to depend largely on the educational staff. For example, in a study conducted in Israel, higher

education dropping out has been found to be the outcome of problematic interactions between students and teachers (Kav-Lahinuch, 2007). Relatedly, Baker and Robnett (2012) have found that approaches that engage and build relationships with students early in the semester may assist in raising student confidence levels and reduce dropout risks. Njoroge, Wang'eri, and Gichure (2016) concluded that the quality of student-faculty interaction inside and outside of classroom has a great effect on a student's decision to stay or leave the institution.

The research reviewed in this section forms the background and basis of the Dropout Reduction Model, which we present in the next section.

The Dropout Reduction Model

The foregoing background and literature review demonstrates the need for a concrete theoretical model of dropout reduction that is based on emerging research and theory related to institutional responsibility. To address this need, we developed the Dropout Reduction Model (DRM), with the goal of conceptualizing higher education dropout form a perspective of institutional responsibility. The DRM consists of three main theoretical values proposed to reduce dropout: personal commitment, social support, and institutional openness. Each of these three values is associated with a concrete strategy that institutions can use to reduce dropout. Figure no. 1 presents the values and strategies of the DRM.

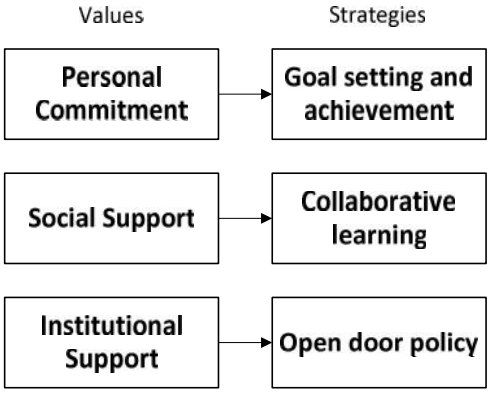

Figure no. 1. Values and strategies in the Dropout Reduction Model

The following subsections present detailed discussions and justifications of each of the three values of the DRM.

Personal Commitment

The literature describes three types of commitment. One is commitment to personal objectives. This type of commitment relates to the strength of a student's desire to complete his studies and receive the degree or certificate (Beck and Milligan, 2014). The second type is commitment to the future career and profession the student is going to acquire through his education (Meyer and Marx, 2014). The third is commitment to a specific educational institution in which the student studies (Tinto, 1975).

Providing students with guidance for an effective and timely learning process for the first written assignments they submit can promote better integration and adaptation to an institution's standards (Brinkworth et al., 2009). Therefore, the focus is not on assignments' grades *per se*, but rather on the learning process they represent and on the gradual improvement promoted by appropriate feedback, which, in turn, is linked to a modular teaching system, pedagogy, preferred learning styles and structure of the college.

This process, as it applies to adult education, is termed *andragogy*, which is defined as an approach to adult education rooted in problem solving, rather than subjects (Ozuah, 2016). This definition expresses the philosophical differences between pedagogy and

andragogy and their extensive applications in educational settings. The pedagogy model, as it has been traditionally perceived, comprises two basic assumptions about learning, meaning that the educational system, including management and teachers, identifies the need to learn, but not the learner. The latter term means that the educational system identifies the learner's self-concept as one of dependency. As explained, andragogy is holistic and focuses on all student`s needs in the college, while traditional pedagogy focuses mostly on learning methods.

Social Support

All the models presented in the Background section are compatible with the theory that social integration plays an important part in the student retention problem. The extent of its impact, and the degree to which we should expect students to depart from their family and culture in order to integrate in the new social environment, are an important topic for debate among different theoreticians.

Cobb (1976) defined *social support* as social interaction over long periods of time between individuals who share the same values, who can be trusted, and who can offer emotional encouragement, help, and financial resources. According to Cobb, social support is defined as belongingness, which provides information, and this information leads a person to believe that there are those who love him, care for him, and respect him, and that he belongs to a network of co-committed relationship. Cohen and Wills (1985) saw social support as providing four major types of support: the option to consult and share with another individual, the social support that is sometimes needed, support of self-esteem and a sense of belonging.

As in the models reviewed above, social support is a fundamental value in the DRM. Various studies have indicated the importance of social support for improved mental welfare. A link has been found between social support and a person's success when coping with tasks and challenges in general and specifically under stress. Social support from the close environment provides an individual with support and feedback, especially in states of confusion, distress, or crisis (Gray et al., 2013).

A study that has examined the link between crisis and change in students who cope with their academic studies has found that psychological welfare during higher education depends on social support of the staff, which includes the student having a sympathetic ear of both the academic staff and the administrative staff, resulting in full satisfaction and willingness to stay in the educational institution (Ong and Chan, 2012). The study divided psychological welfare into a cognitive component and an affective component. Psychological welfare was found to be higher in an institute in which students have enjoyed social support and lower among students in an academic institution in which they have not enjoyed social support and have had to cope alone with the pressures of higher education (Ong and Chan, 2012). This study shows that social support is a vital resource, and that stress and negative feelings arise in students who lack it, as compared with students who have many social support resources, since it moderates the link between crisis and negative feelings (Ong and Chan, 2012).

Social support is a significant component for individuals under pressure to achieve a goal. A high level of welfare can be retained among students, even when they are in stress or distress, if they receive social support as an environmental resource (Ong and Chan, 2012). Social support is an environmental resource that can change an individual's behaviour when it is integrated in a student's life and thinking patterns (Gray et al., 2013).

Moreover, social support contributes to the development and enhancement of feelings of ability, self-value, or self-capability. This enables an individual to cope successfully with the challenges of life, with educational requirements, and with social and

personal crises, and it creates a sense of self-value. Social support also contributes to decreasing the negative physiological responses caused by stress (Gray et al., 2013).

Students perceive social support as very helpful to their academic achievements. Most students, especially during their first year in higher education, and a little less during their undergraduate studies, are interested in joint social activities, for making social connections as well as for receiving practical assistance with their studies (Gray et al., 2013).

Groups, especially small groups, are very valuable for creating a sense of belonging and involvement (Noroge et al., 2013). Discussions within a group, between members who share similar backgrounds and goals, assist the group members in raising personal problems, getting advice from members who are not personally involved, talking about experiences they share in common, receiving social support, and seeing the contexts or links between an individual's life and the community or the organization's life (Noroge et al., 2013).

Institutional Support

The third variable included in the Dropout Reduction Model is an institution's approach. It is important that the students feel they can approach faculty members with any question or problem they encounter. If student dropout is not a single event, but rather a process in which students become increasingly disaffected and alienated from higher education (Bask and Salmela-Aro, 2013), then increasing a teacher's awareness of students' situation and the difficulties which they face may enable the institution to prevent dropout early.

The *open door policy* is one of the means of improving communication in the organization as well as improving the administration, by using prompt feedback (Gabbard and Mupinga, 2013). This policy aims to prevent disagreements between a student and the administrative staff, or competition due to dissatisfaction regarding certain benefits an institution offers (Gabbard and Mupinga, 2013). The open door policy has been found to have a positive influence on student achievement. It specifically allows a student to express his feelings in the higher education institution and outside of it, and to talk about difficulties and frustrations while suggesting improvements (Gabbard and Mupinga, 2013).

When there is an open door policy, students are allowed or even required to approach any person who may help them once a problem arises or when something is unclear. Therefore, when the open door policy is maintained, it is part of the system that supports the student (Shah and Whannell, 2016). Hence, the open door policy means that any student in an academic institution can approach the academic staff, even if there is no direct student-teacher or student-administrator interaction, and present them with his problem, expecting their help (Gabbard and Mupinga, 2013). Moreover, the open door policy is not only an approach that expresses openness, but its goal is also to allow an opportunity to discuss major approaches to solving the problem and even to change the coping strategy, if needed (Bergman, 2016).

According to Thompson et al. (2012), the open door policy has four major advantages. The first is a positive contribution to the institution's climate and population. The second is that it creates effective relations with the board of directors of the educational institution. The third is that it makes it possible to make strategic decisions to promote the institution, and the fourth is that it allows better and more efficient ability to cope with budget challenges (as compared to when no open door policy is in place). An open door policy may decrease dropout, even in cases where a student experiences personal difficulties that are not related to the institution's policy.

Model Integration

The three values of the model integrate with one another, and support each other. Personal commitment contributes to the formation of a student's academic interaction, from which evolve social interaction, enhanced self-esteem, and social support. Social support helps to strengthen a student's relationship with both his environment and the educational institution, and also helps him cope with difficulties that may arise in higher education. The open door policy of an institution helps a student overcome the obstacles he encounters in his academic studies, as well as in his personal involvement and even personal problems, if they transcend the social support he receives. Thus, the three values of suggested model support each other and may become integrated in the academic environment, the internal environment (inside the academic institution and on campus), and the external environment (relations with friends and support when coping with various tasks).

The suggested model may help deal with other problems that lead to student dropout, such as reading comprehension difficulties and difficulties in accessing study materials. The open door policy, which allows all students to approach faculty members with their problems, may shorten the time needed for getting help in different subjects, while referring to the specific problem of each student, whether a social problem, or a problem of coping with the academic material, teaching style, learning style, or coping with the tasks ahead of him.

Using strategies to improve the three values of the DRM could lead to a reduction in dropout, particularly among at-risk students and nontraditional students. Concrete implementation of the DRM will be necessary for practitioners to take advantage of this theoretical model. Therefore, in the next section, we propose an intervention based on the DRM.

A Dropout Reduction Intervention

The following intervention is based on the principles of the Dropout Reduction Model and is targeted at small colleges with large populations of nontraditional students. The model has been tested empirically and has proven to reduce dropout significantly; however, publication of these results is forthcoming. The purpose of this section is to present a detailed description of the intervention, which practitioners can use to implement the DRM in their own institutions.

The DRM Intervention includes a training program for faculty and staff and a prevention program for dealing with absences and student distress. Thus, the DRM Intervention targets the student level, class level, lecturer level, and institution level. Table 1 summarizes the activities involved in each level of the intervention.

Table no. 1. Model Dimensions

	Activities for implementation of the intervention	**Resources for implementation of the intervention**
Student level	Personal target program for improvement of competitiveness and meeting attendance targets. Practice and personal experience throughout two semesters.	Tools: continuous attendance log of a student, grades sheet. Personal meeting with a student that includes support, consulting and guidance by the following college factors: secretaries, lecturers, department head and college principal.
Class level	2 workshops that include: Collaborative learning and peer instruction workshop. Target management workshop through supplying tools for time management and planning. Practice and personal experience throughout two semesters.	Allocation of hours for the workshop in each class by professional factors (department heads).
	Feedback conversations on learning experience and intervention results.	Class/personal conversations
Lecturer level	Collaborative learning workshop that instills a lecturer with teaching skills.	Scheduling department meetings Supplying support and instruction for lecturers by the department head.
College level	Open door workshop that provides the management level and the administrative level a change in attitude and behavior regarding the treatment of a student.	Scheduling board meetings, supplying explanation and updates regarding the intervention process and its results.

The following subsections describe the workshops and the prevention program.

Workshops

The goal of the staff workshops is to provide college staff with a theoretical framework based on the Dropout Reduction Model. Higher education institutions often do not instil a student, in the first semester of his studies, with tools and/or training. Therefore, a student must begin his studies with the tools he has acquired and adopted in the previous framework. Such tools do not always exist, and, occasionally, the acquired tools do not fit present framework. Out of this deprivation, the intervention emphasizes instilling a student in the first year with skills in order to be able to meet the required targets, through time management and planning.

The college staff includes two levels: pedagogical staff and administrative staff. Pedagogical staff are further divided into two categories: pedagogical-managerial and pedagogical-teaching staff. The intervention consists of workshops for each of the three levels.

Staff workshop 1: Pedagogical-managerial workshop. The pedagogical-managerial workshop describes implementation of the open door policy in a college. As part of the workshop, management are given tools for implementation of policies for giving personal treatment to students. The model's purposes and the three main values of the model are presented. Early in this step, the intervention facilitator emphasizes that the department heads will be qualified to be "dropout managers" and will be responsible for this matter in their departments. During the management workshop, the facilitator explains the open door policy through simulations and examples. The facilitator clarifies that the managers have the responsibility to transfer the principal parts of the policy to the administration office.

Staff workshop 2: Pedagogical-teaching workshop. The pedagogical-teaching workshop instructs teachers in the implementation of collaborative learning (during the class workshop) for improvement of teaching skills, and in contributing to institutional

openness by personally addressing the distresses of a student. The training for department heads is delivered in three meetings.

After the managers and principal of the study institution accept and approve the model, including the open door policy, a convening of department heads is held to stress the great responsibility that is laid on their shoulders in application and implementation of the intervention. They are asked to be committed to the open door policy in the college, and are were told that it is their responsibility to present the lecturers with this policy and apply it in practice.

It is emphasized to them that they are supposed to deliver a workshop of collaborative learning, both to lecturers and students in their departments, and they must present the required study skills for students, in a general framework of personal commitment, and implement the intervention program.

The first meeting reviews the components of the model, and the facilitator explains the tools required for enhancing personal commitment and setting personal targets. During the workshop, a variety of effective tools are presented for time management, management by targets, and priority management, simulation, problems and solutions.

In the second meeting, the advantages of collaborative learning are presented to the department heads, including how group practice or group assignments might increase social support. In this meeting, the facilitator explains the advantages of peer instruction, and the contribution of such instruction to all those involved in the process.

The third meeting takes place according to demand of the study institution, in which the facilitator addresses the difficulties or problems of the transition from theory to practice. At the end of third meeting, the department heads are qualified as dropout managers in each department. They are told that, if any problem arises, the facilitator would be happy to assist and guide them in the process. The department heads have a direct communication channel with the facilitator throughout the first semester for supplying solutions and recommendations.

Department heads are responsible for ensuring that the lecturers, together with the department's administrative staff, are aware of the Dropout Reduction Model and are equipped for studying and practicing in small groups. Additionally, the dropout managers have the responsibility to train students for collaborative learning and supply them with the managerial tools for improvement of study skills.

Staff workshop 3: Administrative workshop. The administrative workshop provides administrative staff with tools for creation of a student personal support system, following which they are expected to exhibit warm and personal relations with each student. Additionally, administrative staff are told that, as part of the feedback conducted at the end of first semester, students will award them a score on kind and professional service.

Workshop follow up. Two months after the first workshop, another meeting takes place, in which the principals and department report on the progress of the process. Further meetings with the dropout reduction program manager are held according to request of the institution.

The dropout managers are asked to maintain a log to provide information on how the model works in practice. In addition, it is recommended to the department heads to hold feedback talks with students and with department secretaries. At the end of the first semester, a final discussion is held, and the department heads are asked to present intermediate findings before the institution's principal.

Prevention Program

The purpose of a prevention program was isolation, recognition, diagnosis, and treatment of behaviours that characterize hidden dropout, through initiated reporting of the

administrative staff and initiated reporting of a student. This aligns with the institutional support dimension of the DRM. The program was based on two stages, presented in the following paragraphs.

First stage: Initial prevention. The first stage relates to regulations regarding cessation of studying and an opening talk intended for new students. As part of the first stage of the prevention program, the college implements the following regulation pertaining the staff. In all matters of opening talk with students by a department head, the following procedure should be maintained:

> *Department heads must make sure that the opening talk with first-year students takes place on the first day of study prior to beginning study. Students should be encouraged to review the study program for next year in general, and the study program for the first semester in particular. Additionally, the essence of the program should be distributed to the students in writing.*

The purpose of this regulation is to reduce the uncertainty of a new student at the beginning of the school year.

Second stage: Secondary prevention. The second stage relates directly to the college staff and includes personal support and following up on a student's attendance. This stage consists of the university adopting the following policy, pertaining to staff:

> *Any staff member who discovers a student in difficulty or distress should report it immediately to a college official. On any appeal to a college official, when a student informs the official of his desire to leave, the meeting shall be documented, and its main parts forwarded to the department head for decision on further treatment of the student*.

Staff are required to maintain close follow up on a student's attendance in various courses, to be performed both by lecturers, through an attendance log, and by the department office, through crosschecking multiple attendance logs. After two unjustified absences, a student is sent a letter of warning. A third absence in a row would call for a summoning for conversation with the department head, to clarify the absence and provide personal counselling. A concentration of the data and the follow up on a student are conducted consistently and consecutively by the administrative staff, and the department head receives freuent updates, including a weekly report from the department office, during the first semester.

4. Conclusions

The study contributes to literature on dropout reduction by presenting an integrative, person-centred model of dropout reduction and an associated intervention. By providing detailed information on the nature of the intervention, its structure, and its contents, the researcher hopes to inspire other researchers to test and build on the Dropout Reduction Model. It is the belief of the researcher that the tools that compose the intervention might have a contribution in students' lives after the intervention itself. Development of study skills might improve students' managerial abilities and contribute to work life and personal life. Team building in class, allows for creation of social relations outside the study framework as well. Therefore, this study has practical implications from a humanistic perspective as well as a business perspective.

This study contributes to practice by providing a model of a dropout reduction intervention that is not resource-intensive and that can be implemented with minimal resources. The intervention described in this study may have additional cost-saving benefits for institutions, who do not have to pay for additional academic support and tutoring, thanks to the implementation of peer instruction. Usually, open door policies are pertinent to management strata only; the innovation in current model is that the

administrative staff are responsible for the policy, as well. This supports practice by providing a model of the potential benefits of involving administrative staff in open door policies and other institutional support policies.

By proposing an effective, low-cost intervention for reducing dropout among first-year college students, the researcher hopes to contribute to cost savings for higher education institutions, as well as to national governments. By saving costs sunk into dropped-out students, institutions and the government will benefit from the widespread implementation of this intervention. Nevertheless, before the intervention is ready for widespread implementation, it needs to be expanded and researched further.

Student dropout is a complex problem, and a single program or model is unlikely to fit all students. However, the model proposed by the researcher offers useful guidelines, and promotes an atmosphere of student empowerment and involvement that can advance student retention in different institutions. The unique characteristics of each population should be taken into account, and modification of the model can be accomplished while maintaining the three central values.

References

1. Alarcon, G.M. and Edwards, J.M., 2013. Ability and motivation: Assessing individual factors that contribute to university retention. *Journal of Educational Psychology*, 105(1), pp.129-137.
2. Aguiar, E., Chawla, N.V., Brockman, J., Ambrose, G.A. and Goodrich, V., 2014. *Engagement vs performance: using electronic portfolios to predict first semester engineering student retention*. Proceedings of the Fourth International Conference on Learning Analytics And Knowledge, pp.103-112.
3. Arzu , K.L., 2012. *High school dropouts in Belize: A grid and group explanation*. Unpublished Doctoral Dissertation.
4. Ayalon, H. and McDossi, O., 2016. *First-generation college students in an expanded and diversified higher education system: The case of Israel. Socioeconomic Inequality in Israel.* US: Palgrave Macmillan.
5. Bask, M. and Salmela-Aro, K., 2013. Burned out to drop out: Exploring the relationship between school burnout and school dropout. *European Journal of Psychology of Education*, 28(2), pp.511-528.
6. Bergman, M., 2016. From stopout to scholar: Pathways to Graduation through Adult Degree completion programs. *International Journal of Information Communication Technologies and Human Development*, 8(4), pp.1-12.
7. Bonett, D.G. and Wright, T.A., 2015. Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of Organizational Behavior*, 36(1), pp.3-15.
8. Braxton, J.M., Doyle, W.R., Hartley III, H.V., Hirschy, A.S., Jones, W.A. and McLendon, M.K., 2013. *Rethinking college student retention*. Hoboken, NJ: John Wiley & Sons.
9. Brown, G.A., Bull, J. and Pendlebury, M., 2013. Assessing *student learning in higher education*. New York, NY: Routledge.
10. Diamond, I.R., Grant, R.C., Feldman, B.M., Pencharz, P.B., Ling, S.C., Moore, A.M. and Wales, P.W., 2014. Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology*, 67(4), pp.401-409.
11. Feniger, Y. and Ayalon, H., 2016. English as a gatekeeper: Inequality between Jews and Arabs in access to higher education in Israel. *International Journal of Educational Research*, 76, pp.104-111.

12. Fichten, C.S., Heiman, T., Jorgensen, M., Nguyen, M.N., Havel, A., King, L. and Amsel, R., 2016. Theory of planned behavior predicts graduation intentions of Canadian and Israeli postsecondary students with and without learning disabilities/attention deficit hyperactivity disorder. *International Journal of Higher Education*, 5(1), pp.208-219.
13. Freeman, J. and Simonsen, B., 2015. Examining the impact of policy and practice interventions on high school dropout and school completion rates: A systematic review of the literature. *Review of Educational Research*, 85(2), pp.205-248.
14. Gabbard, A. and Mupinga, D.M., 2013. Balancing open access with academic standards: implications for community college faculty. *Community College Journal of Research and Practice*, 37(5), pp.374-381.
15. Gray, R., Vitak, J., Easton, E.W. and Ellison, N.B., 2013. Examining social adjustment to college in the age of social media: Factors influencing successful transitions and persistence. *Computers & Education*, 67, pp.193-207.
16. Jenkins-Guarnieri, M.A., Horne, M.M., Wallis, A.L., Rings, J.A. and Vaughan, A.L., 2015. Quantitative evaluation of a first year seminar program relationships to persistence and academic success. *Journal of College Student Retention: Research, Theory & Practice*, 16(4), pp.593-606.
17. Kalsbeek, D.H. and Zucker, B., 2013. Reframing retention strategy: A focus on profile. New Directions for Higher Education, 161, pp.15-25.
18. Lindsay, R. and Williams, D., 2015. *Student Integration and Motivation: Academic Integration, Social Integration, Student Motivation and Retention*. Unpublished doctoral dissertation.
19. Murnane, R.J. and Ganimian, A., 2014. *Improving educational outcomes in developing countries: Lessons from rigorous evaluations*. NBER Working Paper, (w20284).
20. Njoroge, M.M., Wang'eri, T. and Gichure, C., 2016. Role of student faculty interaction in attrition among students in private universities in Nairobi county, Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies*, 7(1), pp.49-59.
21. Pearl, J., Glymour, M. and Jewell, N.P., 2016. *Causal inference in statistics: A primer*. US: John Wiley & Sons.
22. Quinn, J., 2013. *Drop-out and Completion in Higher Education in Europe among students from under-represented groups*. Report for the EU Commission.
23. Rissanen, I., Tirri, K. and Kuusisto, E., 2015. Finnish teachers' attitudes about Muslim students and Muslim student integration. *Journal for the Scientific Study of Religion*, 54(2), pp.277-290.
24. Schwartz, H. and Hain, R., 2014. Psychological treatment as part of dropout prevention: An Israeli program. *Journal of College Student Psychotherapy*, 28(3), pp.218-228.
25. Shah, M. and Whannell, R., 2016. Open access enabling courses: risking academic standards or meeting equity aspirations. *Perspectives: Policy and Practice in Higher Education*, 21(2-3), pp.51-62.
26. Shields, R., 2016. Reconsidering regionalisation in global higher education: student mobility spaces of the European Higher Education Area. *Compare: A Journal of Comparative and International Education*, 46(1), pp.5-23.
27. Wagner, J.M., 2015. Hispanic minority college students at selective colleges: What matters with degree completion? *Journal of Hispanic Higher Education*, 14(4), pp.1-24.