Factor Analysis of Inertia, Capacities, and Educational Performance of At-Risk Students' Training Centres According to Their Academic Failure in Mathematics

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Abstract

Immigrants face many barriers in moving from one country to another. Today's massive migrations are dislocating students from their cultures, families, and their schooling. In Iran, such students were not able to enter Iranian schools prior to 2017. Even now, many such immigrant students are being educated in centres administered by non-governmental organisations (NGO) where the schooling is focused on providing youth with knowledge on nutrition, health care, language and mathematics, and maintaining family links where possible. Still, external and internal factors lead to many at-risk students dropping out of the programs. The researchers have focused on the failure of at-risk students in mathematics in four of these schools supported by two NGO agencies. It was clear that the inertia of both teachers and students in mathematics was influencing both teacher choices and planning and student choices in providing conceptual understanding and algorithmic performance. Given the lack of instrumentation to gauge and describe organisational and managerial aspects of the schools and meaningful assessments of students' progress, the researchers modified a questionnaire from organisational inertia for examining the administrative factors in business and created a series of mathematics tests to quantify and describe at-risk students' movement through either second or third grade mathematics classes. The data provided by an Exploratory Factor Analysis of the assessment outcomes provide a predictive picture of student persistence versus administrative changes and, more generally, on ways that teacher/educators and educational staff members can implement

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strategies to help immigrant at-risk students transition from mindless repetition to understanding in their mathematics school work.

Keywords: At-risk students, mathematics, inertia, dynamic capacities, educational performance.

1. Introduction

Continuity and survival are among the most important goals of all organisations. Organizations face a constant struggle to deal with changing environments filled with accelerating rates of change affecting each issue. Factors such as intense global competition, changing technologies, and demands for increased quality of service all call for rapid-response from companies to schools. In both arenas, prior solutions fail to meet emerging problems. When pre-set rules and formulas are not helpful, students need to know how to learn, innovate, and adapt new solutions (Abbasi et al., 2010). Using the principles of inertia in physics in organisational management often illustrates how inertia may affect the organisation's ability to learn and solve problems (Laio, 2002). Today, innovation is required in the operations of organisations, if the organisations are looking to create new ideas. The organisations need to create infrastructures to turn innovation into a continuous process focused on new product generation and new service processes that lead every changing source of continuity and guarantee survival in a changing world (DehghanNajm, 2009).

2. Resistance to Change

At the heart of making change for students at risk is overcoming resistance to change from both students and teachers. In the "resistance to change" literature, researchers stress the fact that in change management, the human aspects of change, i.e., the effects of the changes on the individuals or the individuals' roles in the change, are the factors most often ignored (Szamosi, Duxbury, 2001). Tichy and Devanna (1997) identified three basic factors for resistance to effective organisational change: technical barriers (such as organisational inertia), political barriers (such as threats or coalitions), and cultural barriers (such as lack of the atmosphere which supports the change or commitment and attachment to the existing methods). Inspection shows that each of these factors is related to the organisation's previous daily activities and thus directly to the employees' support or resistance.

Hedberg and Ericson (1979) believed that inertia in insights, action, and organisational psychology are an obstacle to the way in which the organisation will develop and implement the major strategic decisions they make. Inertia appears when there is a considerable interval between the time at which decisions are made about major changes in the environment of an organisation and the time at which the members of the organisation are informed about these changes. Therefore, the analysis of the organisational environment reflects a managerial insight on the created environment. However, the response of the organisation to these changes is often slow and the attempts to apply the changes do not occur at appropriate or useful times (Edberg, Wolff, 2003). Given the above, the researcher seeks to introduce and express a metaphor titled inertia for educational settings. Since using a metaphor is a way to facilitate understanding of the intangible issues, it is useful in describing the resistance to change in educational settings or organisations. The main aim of the researcher is to investigate the resistance to changes in learning environments, such as the training centres for children at risk.

In Iran, a developing country, immigrant children or other at-risk children do not have access to the special educational facilities and benefits. Lack of such funding from the government and the financial stresses associated with the refugees have attracted more attention to these issues. The affected children have migrated from neighbouring countries to Iran for reasons such as war, terrorist activities, and to gain stability in their lives. Therefore, they require financial and non-financial resources from Iran. If the necessary measures are not implemented properly, these children and their families will live under adverse conditions and the human and financial resources of Iran will be wasted.

3. At-risk Students

Various definitions and conceptions of at-risk students have been proposed in the literature. Alfassi (2003), defined at-risk students as "a group of students who have experienced difficulties

and/or failures as learners" (p. 29). Masten (1997) noted that the label of "at-risk" is given to affected students for several different reasons, often without consistency. Christiansen (1997) cited several risk factors, such as substance abuse, increased violence, disabilities, neglect and abuse, and a change in family structure. These potential causal factors of at-risk students are often linked with school failure. As MacMath et al. (2009) declared, at-risk students face challenges such as failing classes, inability in adapting to the school environment, difficulty completing high school, inconsistent attendance, and negative behaviours at school. In the literature, "dropouts" is another label that is often given to at-risk students. Menzer and Hampel (2009) defined dropouts as non-graduating students who have left the school before finishing their senior year. According to Kayler and Sherman (2009), dropouts possibly have difficulty with other issues, as they are more likely to be recognised as at-risk students. In Iran, the economic status of families has resulted in most refugee students working in the local economy from grade two forward. This impacts their time for study and their physical preparedness and frame of mine for learning.

In the literature, at-risk students have been categorised in different groups. In their study, Menzer and Hampel (2009) identified four types of at-risk students who were at risk of dropping out and not graduating. *Lackadaisical* was the first classification, referring to the lazy students who pass their classes, but do not believe in planning for college. *Overwhelmed* describes the second group. Students in this classification are students with low flexibility who have to give more importance to their need to survive than to their education. The third classification, *Strugglers*, refers to students whose parents have not been involved in their education, have repeatedly showed academic needs, and have been involved in remedial classes or retained in a lower grade. The final group, labelled as the *surprised* students, refers to students who were unable to graduate due to miscounting their credits or failing one of their classes at the end of their senior year. Menzer and Hampel (2009) stated that considering these four types of students, the last group showed the most flexibility. Irrespective of how classifications of at-risk students are conceptualised, it is clear that all at-risk students face a mixture of academic and life challenges that can affect their ability to be successful in educational settings. Bruyere (2010), and Gutman et al. (2002), argue that since the majority of at-risk students have a number of factors that affect their education, it is not effective to identify only a single risk factor. They agree with others that each of the variables, such as the educational staff, teachers, and administrators; school contexts and regulations; family issues; and the responses of the individual play major roles in determining whether students become at-risk or not.

3.1 Immigration Issues and Afghani Students

Until very recently, refugee Afghani school-aged immigrant students were unable to attend public schools in Iran as they lacked citizenship or the legal papers providing them with access to public schools. However, starting with Supreme Leader Ayatollah Ali Khamenei's decision in 2016 that all immigrant students should be educated, Iran's educational institutions, from the early grades through to university level, have begun to integrate Afghan and other immigrant students into their classrooms. The merging of refugee students in Iran, legally or illegally, is proceeding well, according to Iranian educational sources. Challenges exist in urban areas where a lack of school room space is a problem, but new schools are being built (PressTV News, January 24, 2017).

3.2 Learning Mathematics in Iranian Elementary Schools

One of the major problems that at-risk students in Iran have, be they refugees or not, is learning mathematics. Extant research is scarce, even with Iran having the fifth largest refugee population internationally (Dryden-Peterson, 2015). Existing studies speak to unusually high levels of anxiety, memory problems, difficulties in ordering, difficulties in processing mathematics, difficulties in dealing with mathematical language, visual-spatial misperceptions related to mathematics learning, and word problems in at-risk students. Although the process of identifying and managing the problems is still at an early stage, much attention is now being directed to these issues and more stimulating learning climates have been designed by specific educators. However, teachers should pay special attention to the specific needs that exist in the students themselves.

According to Carpenter (1985), one-third of the time spent for teaching in resource rooms is for the subject of mathematics. Yet, in most of the inclusive classes, not enough attention is paid to the learning differences of the students in mathematics' classes by the mathematics curriculum or

the teachers in those classes. According to the National Council of Teachers of Mathematics (NCTM) (2000), most of the new mathematics curriculum changes in Canada and the United States have been inspired by the *Principles and Standards for School Mathematics* document introduced by the National Council of Teachers of Mathematics (2000). The NCTM argues that by providing at-risk students with rich learning experiences, teachers help the students learn to solve mathematical problems. The Equity Principle of the NCTM highlights the notion that, irrespective of the students' levels of practical skills, problem-based learning, along with the rich and appropriate mathematical experiences should be provided for all the students (Van de Walle, Folk, 2005). Instead of exactingly following the problem-solving procedures prescribed by the teachers, the students should be encouraged to find their own way to solve the problems and share various solutions to show their full understanding. Many studies have shown that procedural practice and rote learning alone are not beneficial for at-risk students, which supports the Equity Principle (Van de Walle, Folk, 2005). Since learning basic, fundamental skills might be boring for at-risk students, negativity towards the subject matter may increase (Expert Panel on Student Success in Ontario, 2004). Moreover, when students rely on rote learning, the probability that they practise incorrect methods increases. Henceforth, more individual practice and volume do not guarantee success in mathematics (Woodward, Brown, 2006).

According to Wood et al. (2006), since reform-based classroom environments expect students to support their responses and defend their strategies for solving the problems, the students must be able to interact and communicate effectively in a social setting. A teacher is required to support all students' communication of mathematical concepts along with disseminating mathematical knowledge. Thus, communication and language issues must develop with the study of mathematics. Switching back and forth between a teacher-centred and a student-centred classroom cannot be done by the students alone. Therefore, according to Hahn et al. (2006), the transition to a student-centred learning environment should be undertaken consistently and gradually. Such a supportive context in classrooms for refugee children removes the stigma of not immediately knowing an answer and gives them opportunities to structure their own knowledge. While not a direct goal of this study, student knowledge of communication and language skills is also important.

At-risk students can be reached by teachers in different ways. In a study by George (2010), remedial maths interventions were given to a group of college students. The findings of the study revealed that teachers who provided caring behaviours, critiques, and autonomy resulted in students in the class being more motivated. The subjects of the study described the teacher they needed as one who considers the students' limitations in regard to their true needs and lives, and ignores their minor misconceptions. George (2010) also reported that the students emphasised the importance of teachers not imposing on their ability or autonomy in making personal decisions and choices. According to the finding of Kamath et al. (2009), simplifying or changing the curriculum is not necessary; instead providing real-life examples and making the curriculum more application-based is more effective. As MacMath et al. (2009) declared, students can improve self-efficacy and can better grasp the topic through using positive reinforcement and providing repetition.

For at-risk students, the school can have either a detrimental or a beneficial role. The studies by Christiansen (1997) and Bowen et al. (1998) indicate the importance of being part of the solution to problems that affect students and contributing to their learning. Educationally challenged students can be aided if the schools implement the numerous interventions and strategies existing in textbooks, method classes, and research findings. A set of very specific strategies to be implemented by the schools was developed by Wright (2006): first, schools should identify the root problem, whether it is a result of true lack of skill or a lack of motivation. Second, identify the learning stage of the student, and then determine whether the student is in the appropriate instruction level or not. If the interventions are being applied, it is crucial to ensure that the students are actively involved in the intervention, and that the instruction provided matches the students' needs. Considering the steps that the students are required to complete, we can refer to reviewing the material and proving understanding of it in several ways. In the study by Wright (2006), following those strategies, the students' progress was regularly monitored and they were provided with choices. Moreover, Wright suggested that schools create a school-wide program for the students or develop an intervention team that involves the teachers and staff for the students with educational problems (Wright, 2006).

Since non-governmental training centres (child houses) for children at risk in Iran have been in existence, scientific, educational, financial, and progress records are available by law. The researchers decided to find the probable causes of resistance to change. It seems that at-risk students face more academic failure in mathematics in terms of teaching and learning compared to other subjects. Hence, the focus of this study is on the factors affecting academic failure (educational loss) in mathematics. Such failure motivated the researchers to address the causes of resistance to change in students and staff. It is essential for the child houses to help the students in studying with regard to the organisational/educational inertia and also to support at-risk children with reference to social, financial, educational, and cultural affairs. The difficulties of the at-risk students in addressing mathematics in the full range of their programs may negatively affect their academic performance. Studying organisational/educational inertia can help to reduce inertia among the at-risk students. Moreover, study of academic performance of at-risk students' organisations is innovative in terms of its variables/factors on at-risk students' final performance.

Therefore, the main aim was to investigate the factors of organisational inertia in the training houses of the children at risk, the dynamic capabilities and the educational performance of these houses in accordance with the views of educators and the training personnel there due to the successive failure of the children at these houses in mathematics. Of course, there is a lack of a means to estimate this type of resistance (inertia) and dynamic capacities and educational performance. In this study, a questionnaire was designed based on the foreign research to identify the relevant factors, so that the later researchers will be able to use them to estimate self-inertia in the organisational-training centres for children in special circumstances.

4. Inertia and Change

In studies of change, inertia is often treated as an explanation for an organisation's failure or deferral of goals in reacting to changes under competitive pressure. Therefore, as Gresov et al. (1995) stated, inertia is considered as a key predecessor of strategic consequences like organisational mortality or impaired performance. Miller and Friesen (1980) and Hannan and Freeman (1984) defined organisational inertia as the equivalence of external environment and organisational capabilities. However, inertia gets its meaning when it is studied from a more dynamic and analytical viewpoint. The finding of Hakonsson et al. (2009) revealed that long-term performance can be significantly improved as the result of constant change, even in settings that begin as inert organisations. They also maintained that organisations that adjust on a constant basis are more successful. Likewise, Huff and Huff (1995) focused on *future orientation* as an indicator of organisational inertia. In cases where there is a high participant ability for change or the organisation has good capacity to react to change in the external environment, the future potential of the current strategy for change will be high. The three constituent indicators of organisational inertia that best generalise and reflect the organisational inertia construct are extensively examined and defined in this study.

4.1 Resource and Process

In a study on dynamic capabilities, Teece et al. (1997) proposed a definition for the strategic capability and competitive advantage in change, in which they were considered as a function of organisational paths, positions, and processes. "What it [an organization] can do and where it can go is thus heavily constrained by the typography of its processes, positions, and paths" (Teece et al., 1997). According to Teece et al. (1997), the prediction of an organisation's performance and opportunities is possible from the vantage points of its organisational paths, positions, and processes.

Teece et al. (1997) described the managerial and organisational processes theoretically and considered them as a three-fold process comprising reconfiguration, coordination and integration, and learning. The researchers highlighted the effective way through which both external and internal integration and coordination is achieved and also emphasised its high importance. These outcomes indicate that productive systems show high interdependency and that changing one level without changing the other levels is impossible, which means that partial replication is likely to be impractical.

Teece et al. (1997) defined learning as a process through which experimentation and replication which identifies the new production opportunities, also makes the performance of the

task quicker and better. Literature findings indicate that new choices become less attractive and observed as more risky, due to the focus on studies with current capabilities. Firm positions were defined by Teece et al. (1997) as the placement of firm goals in terms of its business assets. By this approach, business assets refer to the difficult-to-exchange knowledge assets and their corresponding assets, and also the relational and reputational ones, instead of referring to its tools and capital goods, unless they are at the heart of the particular change. These assets (vocational assets, complementary assets, technological assets, financial assets) are the determiners of its productivity and market share at any time. The three organisational inertia indicators identified by Teece et al. (1997) suffer from the fact they are theoretical and unsupported through the use of empirical evidence. Resource commitment can be motivated by external threat. However, in the traditional business pattern, routines may stay unchanged.

4.2 Path Dependency

It is essential for managers to search for genetic diversity and for organisations to learn to overlook their past (Hamel, Prahalad, 1994). Kelly and Amburgey (1991) also maintained that organisational history makes the managers remain controlled and, as their study showed, the impact of the previous organisational experiences and actions on the content and probability of change is very high. Teece et al. (1997) defined path dependences as a function of the present position and the onward paths. The path the organisation has already travelled is what frequently forms that organisation's current position. The concept of path dependences indicates that history is important. However, at the same time, the past itself may be the problem. Therefore, a company's repertoire of routines and its previous investments may restrain its upcoming behaviour. According to the Gilbert (2005), routine and resource rigidity approaches and path dependency theory views appear to be complementary.

Sydowet et al. (2009) suggest three indicators considering the path dependences that could be used by other researchers. The first indicator is to conduct a comprehensive path analysis and to identify the operational rigidity or the strategic persistence (or the stimuli that lead to this path dependency). The second indicator included the exploration, identification, and restoration of the self-reinforcing feedback mechanisms, which are probably the basis of the organisational rigidity. And, the third indicator, the important part of a systematic path analysis, is to look for a prompting incident that was expected to have directed the path building process. A question was raised by Sydowet et al. (2009) that explored the probability of the path dependences scope, and they maintained that unpredicted de-locking with regard to a by-product of other organisational decisions, unanticipated exogenous factors (crises or shocks), or an insidious change in organisational demography can lead to the occurrence of the path dissolution.

4.3 Performance and Inertia

Miller and Chen (1994) considered two aspects for the performance consequences of inertia: inertia can negatively affect performance due to the inability to reconcile or it can reduce the risk of making hasty and costly decisions and help the principals to emphasise the strengths of the organisation. According to Miller and Chen (1994), considering both strategic and tactical change actions, no negative effects have been shown towards good performance by organisational inertia, yet, "the performance implications of inertia seem to be very much a function of environment" (p. 18): by the increase of the competitors' action and the multiplicity of customer needs, the benefits of inertia decrease. As Greve (1999) declared, organizational inertia, at the time of changing, makes larger organisations encounter greater losses of market. It is worth mentioning the finding that the inspection of state effect on performance is a key moderator – because of the greater losses of the high performing organisations and the larger losses of the low performing organisations that occur during the change. Using the managerial implications, the experts explain this issue. According to Greve (1999), high performing principals lose from changing due to overestimating their capabilities, as low performing organisations "gain from changing simply because of regression toward the market mean" (p. 610). Therefore, inspection for destination and origin state effects on performance reveal more strong effects of inertia. In a study on the behaviour of banking industry organisations throughout the recession, Ma and Karri (2009) proposed a threshold level of performance which indicates that due to the negative managerial perception, and the lack of available resources, the organisational inertia prevents change within

the organisation. These empirical outcomes indicate the curvilinear and non-monotonic performance effects on inertia. The results of the study by Dobrevet et al. (2003) show inert organisations to be both less likely and more likely to fail while changing. Suppression of organisational or inertia stimulation and its unique effects on performance or the change is dependent on the complex interactions between external and internal contexts.

5. Dynamic Capacities

According to Helfat (1997), dynamic capability is the capacity of an organisation to perform succeeding revisions and extensions, after creating its resource base. She argued that the enterprise processes that can alter existing positions that lead to competitive advantage and the changes in performance encompass dynamic capabilities. As it was defined by Zollo and Winter (2002), dynamic capability is a constant and learned form of collective activity through which the operating routines of the organisation are systematically created and revised in search of better effectiveness. Dynamic capabilities are defined by Winter (2003) as those that function to create, revise or extend ordinary capabilities. According to Katkalo et al. (2010), dynamic capabilities indicate the capacity of an enterprise to organise its resources/assets and activities inside the system of co-specialisation and global specialisation. Moreover, they indicate the enterprise's attempts to generate/form the market in ways that allow the value to be shaped and apprehended. For those individuals who are sceptical about the existence of dynamic capabilities, Winter (2003) asserted that capabilities that would let the enterprise look for new customers, create new sales channels, provide new products, and create relationships with new suppliers, are not at the zero level. Maintainable competitive gain, reconciled to enterprise ecosystems in an open environment, is guaranteed by the promotion to replicate dynamic capabilities, generating and protecting the related organisation's distinctive asset base. Traditional factors of success, which are important but not adequate for a sustainable outstanding performance, include strategic goals arrangement, cost efficiency, economy of scope or scale, and tangible assets. Teece (2007) maintains that effective use of dynamic capabilities is due to the presence of three components: proper implementation, seizing ability and the sensing of new opportunities.

5.1 Sensing Opportunities and Threats

Organizations must constantly filter, search, calibrate, and shape through a search for new opportunities, to shape and identify opportunities (new products, markets, or technologies). Organisations have a variety of accesses to needed information. Such opportunities can be created by new knowledge and new information. Information must be gathered and then filtered from social and professional contacts in order to create a hypothesis or an assumption about the probable evolution of changes, technologies, shifts, marketplace, etc. According to Teece (2007), corporations must create procedures and mechanisms to keep management informed in order to prevent the decline of information moving down and up a hierarchy.

5.2 Seizing Opportunities

Seizing is defined as the skill of making a strategic decision and executing it. The technological opportunity of a new market or supplier must be addressed through new processes, products, and services, once it is detected. Investments in commercialisation and development activity are always needed for addressing opportunities. The business model and the customer solution must be specified by the organisation in order to have knowledge of distribution and supply costs for being able to measure the possible competitive reaction to gain marketplace benefit and approval. An important classification of dynamic capabilities appears around management ability to challenge specific dysfunctional characteristics of traditional resource allocation processes and decision rules. Validation of a business model and processes, and making investment choices, requires special skills which, historically, are not distributed among management crews, as well as both careful judgment and effort. It is partly an art to design organisation borders and design a business model. Nevertheless, according to Teece (2007), organisations that take a relatively or impartially efficient viewpoint to outsource decisions, evaluate the value chain carefully so as to recognise how to provide what the customer needs in a timely and cost-effective mode, have a deep understanding of user needs, examine multiple choices, and have chances to succeed.

5.3 Managing Threats and Transformation/Reconfiguration

The guarantee of resources to investment opportunities, the wise selection of product attributes and technologies, the successful regulation and identification of market and technological opportunities, and the design of business models can lead to the success and growth of organisations. To preserve evolutionary fitness and, if required, to try organisational inertia and negative path dependences and escape from them, reconfiguration is essential. In other words, since operational efficiency needs some level of routine, success will breed it. Change should happen rapidly, because it is expensive to change routines. Withdrawal from routines will cause more anxiety inside the organisation, except when the culture is formed in a way that accepts high levels of internal change.

The best skills of management leadership are necessary for putting up with dynamic capabilities. A main managerial function is achieving business renewal and semi-continuous asset organisation, containing the reform of routines. The old and the new should complement each other within the organisation. Inside the corporation, the management ability to incorporate and mix assets such as know-how is also a major skill. It is crucial to integrate the know-how inside the company, and between the company and organisations outside it. Many control disputes are linked to dynamic capabilities. Some control disputes are associated with incentive alignment. Agency theory highlights that the splitting of ownership from control leads to problems in interest alignment, mostly around the allocation of corporate privileges and management benefits. Another problem related to control is participation at the board level by those who can regulate whether the top management team is adequately dynamic oriented. According to Teece (2007), the boards which are set by new independent board members, may not have the necessary abilities to accurately detect strategic malfeasance and react based on that.

5.4 Performance and Dynamic Capacities

According to the findings by Proelleret et al. (2011), organisational performance is affected by the mediation of strong dynamic capabilities – if the organisation has settled dynamic capabilities in advance, the organisational performance can be positively affected by strategic management. Generally, two recognisable points of reference, organisational resources (Adner, Helfat, 2003; Lopez, 2005) and ordinary capabilities (Pavlou, El Sawy, 2011; Teece, 2007), can be affected and reformed by dynamic capabilities to attain better performance and guarantee competitive advantages. According to the empirical and theoretical evidence, it can be understood that dynamic capabilities can be a direct cause for improvement of organisational performance and can act as a mediator. Future studies should follow two research goals in the relationship between organisational performance and dynamic capabilities – first, to discover the relationship between intermediate outcomes and dynamic capabilities and, second, to investigate and evaluate organisational performance and the intermediate results (Barreto, 2010). The relationship between these indicators and organisational performance can be dissimilar as well. During different stages of the organization's development, the dynamic capabilities' constituent indicators can be joined and can correspond in order to improve the organisational performance, even though they are not discrete and are interdependent. Applying the dynamic capabilities in order to use their potential must be considered as a set of actions on different levels of management.

6. Methodology and Material

The researchers have applied a descriptive analysis method based in data collecting methods, schedule, and the analysis methods for interpreting the data. The present study is an 'applied research' with regard to the objective, involves 'testing hypotheses' in regard to study of beliefs and actions, and can be useful for future research. The quantity-descriptive/analysis method is applied for testing hypotheses. The researchers started by exploring the aim of interest through qualitative methods, working with a few students to see what approaches might work and what difficulties the students encountered in educational centres. The following sections describe the selection of subjects and random assignment of students to treatments, the development of instrumentation and related treatments, specification of hypotheses, and data analysis methods.

6.1 Selecting Sample from the Child Houses of the Society for Protecting the Rights of the Child (SPRC)

The sample of at-risk students and the associated education staff for this present study were chosen from two houses (*Naser Khosrow & Shosh Houses in the south of Tehran*). These two houses serve a population that comprises 150 (kindergarten to grade three) at-risk students with 90 educational personnel at present (2015-2016). Through simple random sampling, 40 at-risk students – 21 males and 19 females – were chosen as at-risk students affected by mathematical difficulties as determined by assessments that educational personnel have made at 2nd and 3rd grades. The 50 randomly selected educational personnel* comprise the teachers of mathematics, literature, and reading; the school psychologist; relevant educational personnel; and counsellors in the field of educational affairs. There is a relationship between the at-risk students and educational personnel from pre-kindergarten to upper grades. At-risk students have worked with the educational personnel in various activities at the houses.

6.2 Selecting Sample from the Child Houses of the Association for Protection of Child Labour (APCL)

Members of the APCL society prepare educational programs and teach at-risk children (Afghans) at kindergarten, pre-school, and first to fourth grade levels. The member child houses of *Molavi & Khavaran Houses* (in Tehran) provide services for at-risk students up to and including grade five. The conditions of at-risk students and personnel in APCL were similar to SPRC in terms of economic, social and cultural, and instructional statues. Generally, the two Houses (*Molavi & Khavaran Houses in south of Tehran*) are considered as a population that comprises 200 (1st to 5th) at-risk students and 95 educational personnel to date (2015-2016). Through simple random sampling, 50 personnel from the education section and 60 at-risk students (31 males and 29 females) were chosen as at-risk students with mathematical difficulties with regard to assessments that educational personnel have said occur at 2nd and 3rd grade levels. The educational personnel comprise teachers of mathematics, literature, and reading; a psychologist; educational personnel; and counsellors in the field of educational affairs.

6.3 Questionnaire

In this study, the researchers also administered a questionnaire designed by Nedzinskas (2013). The questionnaire has two sections: demographic items and the main questions. The portion of the questionnaire dealing with the main questions was structured based on many variables: reconfigure, seize, and sense for the *'dynamic capabilities variable'*; resource, path dependency, and process for the *'organisational inertia variable'*, and new innovations executed and new process for the '*educational performance of child houses variable'*. This portion of the questionnaire has 32 items, each scored on a five-point Likert scale ranging from 1 to 5 for "strongly disagree", "disagree", "neutral", "agree", "strongly agree" responses, respectively. Since the items were originally structured for an organisation and its inertia, the questions have been modified in terms of the educational procedures at the four child houses involved. Items 1-4 deal with reconfigure, items 5-8 deal with seize, items 9-12 deal with sense and are from the 'dynamic capabilities variable'. Items 13-16 that deal with new innovations and items 17-20 that deal with new processes executed are from the 'educational performance of child houses variable'. Items 21-24 deal with resources, items 25-28 deal with process, items 29-32 deal with path dependency and are from the 'organisational inertia variable'. Before distribution of the questionnaire, the researcher explained all items for the educational personnel. They were told to view these items in the context of supposing that they have to solve an educational crisis in the respective child house of the SPRC & APCL societies and they should answer as to how they would make the particular decision for the future.

7. Findings

In examining students' inertia, factors were described detailing the dynamic capabilities of organisations that grew and adapted to change in their organisational inertia. These actions were

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* Researchers interviewed staff with respect to their views about the factors in the educational and environmental circumference that lead to failure of Afghan students in mathematics.

sensing opportunities, seizing opportunities, and reconfiguring and recombining their assets to grow their organisations in an era of change. Education is rife with challenges and opportunities at the present. Likening the decision making and role of the faculty and staff to that of the decision making in a business, the researcher created a questionnaire focusing on decisions and actions characterising the three actions above, sometimes referred to as dynamic capabilities (Teece, 2007). The researcher combined these factors with other factors that give an organisation an advantage in grasping opportunities when they arise (dynamic capabilities) (Teece, 2007) into a questionnaire focused on measuring the readiness for change in organisational inertia in a school setting (Amiripour et al., 2017).

The questionnaire has *face* and *content validity* with regard to experts in educational management. In addition, *convergent* and *divergent* validity are computed with regard to factor loading and *average variances extracted* (AVE) in construct validity respectively (Amiripour et al., 2017). EFA (Exploratory Factor Analysis) will be estimated for divergent validity. In addition, *discriminate validity* values are computed with regard to AVE and R^2. The results of the AVE and R^2 analysis are examined for the instruments in this study and the values all fall between the commonly accepted critical values for acceptance of 0.50 to 0.70 (Amiripour et al., 2017). The reliability of the questionnaire and related sub-measures has been studied by Nedzinskas (2013) and all such estimates of the reliability found to be between 0.80 to 0.90 (see Table 1). These values, computed by SPSS, support the use of these measures as reliable measures for research. Before implementing the questionnaire, the questions were modified many times in order to access suitable reliabilities.

Table 1. Factors and their questions along reliabilities by Nedzinskas (2013)

Factor	α	Observed Variable	α	The questions	The authors
Dynamic Capabilities	0.66	Reconfigure	0.74	1,2,3,4	Teece (2007)
		Seize	0.81	5,6,7,8	Teece (2007); O'Reilly &Tushman (2008); Pavlou & EI Sawy (2011); Eisenhardt & Martin (2000); Zott (2003)
		Sense	0.83	9,10,11,12	Teece (2007); Wang & Ahmed (2007); Borch & Madsen (2007)
Non-financial performance (Educational performance)	0.92	New Innovations Executed	0.82	13,14,15,16	Drnevich & Kriauciunas (2010)
		New Process	0.81	17,18,19,20	Bititci et al. (2011)
Organisational Inertia	0.83	Resource	0.62	21,22,23,24	Gilbert (2005)
		Process	0.79	25,26,27,28	Gilbert (2005)
		Path Dependency	0.83	29,30,31,32	Sydow et al. (2009)

7.1 Descriptive Statistics

Members of the educational personnel of the society schools consisted of 50 individuals from each of the two societies whose schools were involved in the study (80 females and 20 males). These personnel consisted of teachers of mathematics, literature, and reading; the school psychologist; relevant educational personnel; and counsellors who were mainly between 20 and 29 years old and most have the B.C (licentiate degree). The final mathematical examination scores for at-risk students were between 10 to 10.50. Before distribution of the questionnaire, the researcher read all items to the educational personnel. They were instructed to view these items in the context of supposing that they have to solve an educational crisis in their respective child house and were asked to answer as to how they would make the particular decisions for the future. As such, the results of the questionnaire items, when gathered into the varied cluster groups, provided a profile of the teachers' and staff

members' views about the dynamics of educational inertia in their respective schools, as well as the factors supporting the dynamic in their schools. Educational personnel have chosen a modal response of either "strongly disagree" or "disagree" for seven of the eight choice clusters. For the remaining cluster, statements dealing with "path dependency", they selected the "neutral" response.

7.2 Inferential Statistics

The following sections focus on examining the structures of the responses of the educational personnel to the questionnaire through factor analyses enacted by algorithms in the SPSS.

7.2.1 Exploratory Factor Analysis (EFA)

The questionnaire designed for the study has 32 questions designed to measure the varied hypothesised factors mentioned in the main text. The first test involved submitting the items to an EFA to see if the results confirmed the hypothesised latent variables mentioned by Teece and associates. To make sure that the data are suitable and reflective of adequate sampling for conducting an EFA, the data were tested with the Kaiser-Meyer-Olkin test relative to the sampling and then the Bartlett's test (Kaiser, 1970). The size of the adequate sampling (KMO) is > 0.70 and the significant level of sampling test of Bartlett's Test is < 0.05 (Fabrigar et al., 1999). Table 2 demonstrates that KMO is 0.85 and the p-value of Bartlett's Test is 0.000. Therefore, the data structure is suitable for factor analysis:

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.85
Bartlett's Test of Sphericity	Approx. Chi-Square	2620.52
	df	496
	p-value	0.000

Further, the communalities of the items, or the amount of common variance shared with other items, shown in Table 3, indicates that all items in factor analysis are adequate, because their factor loadings are greater than 0.50.

Table 3. Communalities

Items	Initial	Extraction	Items	Initial	Extraction
REC1	1.00	0.88	NP1	1.00	0.77
REC2	1.00	0.68	NP2	1.00	0.73
REC3	1.00	0.63	NP3	1.00	0.75
REC4	1.00	0.74	NP4	1.00	0.81
SEI1	1.00	0.84	RES1	1.00	0.88
SEI2	1.00	0.80	RES2	1.00	0.80
SEI3	1.00	0.81	RES3	1.00	0.82
SEI4	1.00	0.75	RES4	1.00	0.76
SEN1	1.00	0.85	PD1	1.00	0.78
SEN2	1.00	0.85	PD2	1.00	0.82
SEN3	1.00	0.72	PD3	1.00	0.70
SEN4	1.00	0.79	PD4	1.00	0.68
NI1	1.00	0.66	PRO1	1.00	0.83
NI2	1.00	0.88	PRO2	1.00	0.74
NI3	1.00	0.79	PRO3	1.00	0.76
NI4	1.00	0.80	PRO4	1.00	0.82

The table of total explained variance (Table 4) shows that eight factors have been identified. The total explained variance shows that these factors, as a group, can explain about 78.28 % of the variance. This is a significant amount of variance explained and sufficient to continue to interpret the

findings of the EFA. Rotating the component matrix with the use of varimax rotation resulted in the matrix values listed in Table 5. The rotated component matrix includes the factor loadings of each factor multiplied by remaining factors after the rotation.

Table 4. Total explained variance

Component	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
	Cumulative %	Total	% of Variance	Cumulative %
1	37.51	3.84	12.01	12.01
2	50.49	3.54	11.06	23.07
3	57.10	3.30	10.34	33.41
4	62.98	3.07	9.61	43.02
5	67.63	2.98	9.33	52.36
6	71.58	2.93	9.15	61.52
7	75.21	2.91	9.10	70.62
8	78.28	2.40	7.66	78.28

Table 5. Rotated component matrix

Items	Component							
	1	2	3	4	5	6	7	8
REC1	0.50	-0.18	-0.19	0.28	0.00	0.51	0.20	0.41
REC2	0.21	-0.11	-0.12	0.19	-0.09	0.74	0.07	0.08
REC3	0.27	-0.03	-0.005	0.04	-0.00	0.71	0.07	0.19
REC4	0.05	-0.09	-0.06	0.06	-0.03	0.84	0.04	-0.004
SEI1	0.44	-0.25	-0.15	0.67	0.004	0.23	0.17	0.11
SEI2	0.43	-0.18	-0.08	0.70	0.06	0.22	0.14	0.000
SEI3	0.18	0.007	-0.05	0.83	-0.11	0.03	0.15	0.17
SEI4	0.06	-0.009	0.08	0.84	-0.01	0.10	0.05	0.11
SEN1	0.61	-0.17	-0.12	0.30	0.002	0.49	0.16	0.26
SEN2	0.89	-0.02	-0.09	0.07	-0.02	0.14	0.01	0.07
SEN3	0.78	-0.03	-0.04	0.19	-0.05	0.14	0.04	0.22
SEN4	0.83	-0.02	-0.03	0.19	-0.05	0.16	0.17	0.05
NI1	0.38	-0.23	-0.23	0.28	0.03	0.32	0.35	0.31
NI2	0.24	-0.17	-0.24	0.11	-0.07	0.14	0.06	0.83
NI3	0.40	-0.31	-0.24	0.27	-0.08	0.37	0.07	0.50
NI4	0.16	-0.22	-0.13	0.18	-0.09	0.11	0.16	0.79
NP1	0.19	-0.45	-0.34	0.16	-0.08	0.12	0.55	0.24
NP2	0.07	-0.20	0.07	0.25	-0.006	-0.06	0.78	0.04
NP3	0.14	-0.29	-0.22	-0.008	-0.09	0.13	0.74	0.07
NP4	0.07	-0.12	-0.14	0.09	-0.16	0.17	0.83	0.08
RES1	-0.15	0.62	0.38	-0.19	0.23	-0.10	-0.34	-0.32
RES2	-0.10	0.83	0.18	-0.05	0.12	-0.11	-0.13	-0.10
RES3	0.006	0.84	0.15	-0.02	0.17	-0.07	-0.20	-0.07
RES4	-0.05	0.77	0.16	-0.09	0.12	-0.11	-0.24	-0.19
PRO1	-0.02	0.17	0.38	0.08	0.72	-0.12	-0.18	-0.14
PRO2	0.01	0.12	0.08	-0.02	0.89	-0.00	-0.07	0.02
PRO3	-0.12	0.09	0.03	-0.05	0.81	0.05	0.04	-0.10
PRO4	0.02	0.09	0.16	-0.04	0.78	-0.10	-0.10	0.009
PD1	-0.09	0.41	0.67	0.001	0.26	-0.02	-0.25	-0.23
PD2	-0.03	0.26	0.72	0.05	0.25	-0.18	-0.13	-0.16
PD3	-0.11	0.21	0.77	-0.16	0.18	0.02	-0.08	-0.15
PD4	-0.08	0.06	0.89	0.01	0.06	-0.11	-0.03	-0.03

Table 5 shows that eight factors were identified as the main factors. By studying the literature of institutional inertia research and the structure of the pre-designed conceptual model, the following eight factors were named:

1. Sensing (SEN): REC 1, REC2, REC3, REC4
2. Resource (RES): RES1, RES2, RES3, RES4
3. Path Dependency (PD): PD1, PD2, PD3, PD4
4. Seizing (SEI): SEI1, SEI2, SEI3, SEI4
5. Process (PRO): PRO1, PRO2, PRO3, PRO4
6. Reconfigure (REC): REC1, REC2, REC3, REC4
7. New Process (NP): NP1, NP2, NP3, NP4
8. New Innovations Executed (NI): NI1, NI2, NI3, NI4

As is shown in Table 5, the item *New Innovation Executed NI1* (0.38) has a cross loading with the Sensing factor. As theoretical knowledge is more relevant than a statistical measure when such cross loadings occur, if the item is not significantly correlated to any of the factors (generally considered to be less than 0.30) and does not provide a conceptually vital dimension to the measure, the item should be removed. Additionally, a complex variable, or a variable that loads on more than one factor, should be removed if the cross loading is greater than 0.40 (Schonrock-Adema et al., 2009). Hence, from this point forward, item NI1 is treated as belonging to Factor 8.

8. Conclusion

Empirically it can be said that paying attention to the reasons for failure to change in training centres has always been a subject of study for various local and foreign researchers. Since change in today's turbulent modern environments is an inevitable issue for schools and training centres, identifying the reasons for resistance to change and ways of dealing with them, increases the possibility of successful organisational changes. One of the common reasons mentioned for the failure in organisational change in training centres is resistance to change. Resistance of the teachers/educators to change is a complicated issue that school principals always face in the evolving schools/training centres. Resistance to change processes always exist and the individual's resistance is always considered to be one of the critical and important factors for their failure. This issue represents a set of challenges that the principal must overcome to apply the desired changes. In order to facilitate the change from the old methods to the new ones, organisations must have the necessary competence in effective change management .Change management process includes an effort to accept change by those who are involved in this process or those who are affected by change, as well as managing any resistance to it. Inertia and stagnation in the development of the knowledge of the organisation, lead to inertia and stagnation in the entire organisation. Of course, this relationship will be moderated by the arrival of the knowledge absorption capacity variable. This means that if knowledge has stagnated in an organisation (schools/training centres) and the capacity to absorb knowledge is low among the individuals (teachers/educators), the incidence of organisational inertia in schools/training centres will be intensified.

The obtained results for the hypotheses show that the main cause of the recession and the organisational inertia is the low absorption capacity of the organisation. If the schools/training centres intend not to face inertia and stagnation, they should look for strategies to provide ways out of the recession of knowledge as well as increasing the capacity of the individuals to absorb knowledge. The main motivation for conducting this study was to investigate the reasons for the failure of at-risk students in the training centres. One of the major failures of the at-risk students was their failure in mathematics. It seemed that the teachers and educators of their training centres (child houses) had complained about the students' educational status and their successive failures, especially in mathematics at primary schools. Therefore, the researcher decided to examine this issue from a different angle. It seemed that the organisational reasons and the ways of attracting human resources had led to this situation. Previous studies had shown that the failure of the at-risk students, especially in mathematics, is due to the students themselves. However, in this study, we addressed the organisational-environmental factors. Therefore, since there were no means to explore the views of the people working in the training centres for at-risk children, the researcher

decided to develop a questionnaire consistent with the organisational inertia questionnaires adopted from Nedzinskas (2013).

Identification of the factors and their analysis is more important than ever for developing a new questionnaire. The three main factors of dynamic capabilities, organisational inertia, and educational performance were analysed in this study. The study of the dynamic capabilities model let us claim that the dynamic capabilities notion is in its early stages and there are some areas for the further agreement among the researchers, such as in the following areas: organisational innovation and ordinary capabilities, dynamic capabilities' impact on educational performance in different external contexts, common definition of dynamic capabilities and the antecedents of dynamic capabilities, the indicators of dynamic capabilities, and clear borders among dynamic capabilities. The currently evolving dynamic capabilities model also emphasises the conscious management and managerial understanding of dynamic capabilities for employing its benefits.

Even though external environment is important, external context should not be coordinated with dynamic capabilities by default, since for initiation of the dynamic capabilities, different stimuli might act as predominant factors. Investigation of the dynamic capabilities theory has shown different effects of school dynamism to dynamic capabilities and has revealed that competitive benefits do not lie in dynamic capabilities but in their usage and application. Organisational inertia was revealed as an opposing concept for dynamic capabilities, which is obligatory on processes and resources; path dependency prearranged self-reinforcing mechanisms by theoretical findings. Practice analysis and organisational inertia theory have indicated two opposing perspectives by two groups of researchers – that is, the organisational ecologists' and adaptation points of view. The organisational adaptation standpoint considers organisational inertia as a prerequisite to change instead of a consequence of reliability. According to the organisational ecologists' definition, inertia is a consequence of the selection process instead of being a prerequisite for selection. Hence, the path dependences, processes, and observed resources as previous choices that have impact on the competence domains make a foundation for causality between organisational inertia and dynamic capabilities. Many studies explained the interrelationship between organisational inertia and dynamic capabilities. The theory of dynamic capabilities considers dynamic capabilities as a condition for organisational adaptation and, consequently, a tool for overcoming organisational inertia.

Nevertheless, the experts on the dynamic capabilities model have emphasised the fact that dynamic capabilities are required, but are not the only instrument to improve inflexibilities reconfiguration and organisational resources. According to the previous empirical and theoretical analysis and both quantitative and qualitative studies implemented in this study, eleven dynamic capabilities were derived for the first order dimensions in which dynamic capabilities show up. Through these dynamic capabilities' dimensions, the organisations are allowed to react to arising threats and opportunities (sensing), to take proper actions in respect of change implementation (reconfiguration), and to evaluate possible competitive responses and to make appropriate strategic decisions (seizing). Each of these three indicators of organisational inertia (path dependency, resources, and processes) were considered as inflexible actors in the rapid changing of the external environment and as factors that decrease the relative educational performance. The study has recognised processes as the most important indicator of the relative learning performance and as the indicator of organisational inertia.

The relationship between learning performance and dynamic capabilities can be moderated by organisational inertia, so that compared to the child houses with low organisational inertia, the child houses with high organisational inertia have a weaker positive relationship. Schools/training centres and the performance of the education system for at-risk children is very important in any society. When we see scientific recessions and educational failures, it seems that the human and financial resources of that country are wasted. Educational failure in mathematics in child houses was an impetus to investigate the causes of the failures. Investigating educational failure from the angle by which we addressed organisational failure can reveal a new perspective. Considering the above, for each of the three main factors, some sub-factors were made and developed through exploratory factor analysis (EFA) based on the views of teachers/trainers and education staff in child houses for the at-risk children. This questionnaire with these factors and sub-factors can reveal the scientific recessions, educational capabilities, and dynamic and static educational

performance in child houses for at-risk children. Suggestions are offered below for coping with inertia and intensity of the dynamic capabilities:

Strategies for training the human resources based on their dynamic capabilities: With all the difficulties and problems, it must be admitted that the survival of the training centres for at-risk children is largely dependent on the knowledge, awareness and new and different skills of the teachers. The more their knowledge and skills are coordinated and compliant with the needs of the community and scientific progress, the higher is the assurance of the success of the individuals and education centres. The basis of dealing with inertia in the organisation and the institutional development is the improvement of human resources, which is executed in different forms (pre-service and in-service teacher/educator trainings) in organisations.

Strategies to overcome resistance to change: One of the most documented achievements about the behaviour of individual and the organisations is that the organisation and its members resist change. Resistance to change can be identified as one of the sources of organisational inertia. The individual's resistance to change is one of the most important issues in organisations because they see change as a threat to themselves and do not simply accept the changes. Overcoming this resistance and directing it is one of the most difficult tasks that the principals of the training centres for at-risk children face. However, whatever the change is, and regardless of whatever intensity it has, it needs management and leadership, and the principal should justify the changes and provide the necessary information and knowledge. There are two sources for the resistance to change:

• The resistances that have individual origins and are related to the personal characteristics of the individuals, including: habit, security, fear of the unknown, economic factors and lack of self-confidence.

• The resistances that have organisational origin, including: the structural mechanisms, feeling threatened by the experts, group norms, and job investment.

Each of these two factors can lead the organisation toward stagnation and inertia. The principals of the training centres for at-risk children, especially the principals of the government agencies, should think about ways to overcome these factors. Some strategies are provided below:

Education and communication: To break resistance, communication must be established with teachers and the reasons for the changes must be explained and outlined for them.

Participation: Before making any changes, an invitation must be extended to those who are likely to oppose them and they should be allowed to participate in decision-making.

Considering the facilities: In exchange for a decrease in resistance, something valuable should be given to those individuals or the advantages that they gain in this way should be counted.

Use of force: This means that the management of child houses for the at-risk children directly threatens the resistance groups and forces them to abandon their resistance. Examples of the use of force are: threat of dismissal, change of the job position and demotion.

Use of educational technology programs: One of the strategies for overcoming inertia among teachers/staff of child houses is to implement technological program courses in a monthly cycle so that teachers/staff have to introduce self-skills in the field of technology for teaching and educating at-risk students. This procedure will motivate and improve technology literacy among teachers/staff in order to prevent inertia.

It must be acknowledged that the complexity of the phenomenon of organisational inertia is due to the fact that environmental change is a dynamic process and it is made by the interaction of various factors. All of these factors and variables in causal relationships with each other create a mechanism that makes understanding and analysing inertia difficult. Therefore, detection of the appropriate direction of the change becomes difficult and the role of principals in dealing with the more fundamental changes becomes more apparent. The child houses for at-risk children, as the most important training centres in each country, should move towards trust making, facilitating the flow of knowledge, structural flexibility, and the development of informal relationships and collaborative groups. The principals must take heed of their teachers' spirit, social communications and maintain and promote friendly relations, participate in teamwork, eliminate the obstacles to

activities, and prepare the appropriate conditions, facilities and setting for such teachers/educators. For the development of knowledge-based training centres for at-risk children and for overcoming inertia, beliefs, attitudes and behaviours must be oriented towards the production of knowledge. This questionnaire must be used during the training period to evaluate the scientific, financial, and human recessions, and to evaluate the capabilities of the individuals and educational performance of the child houses for at-risk children, and to propose solutions like the above-mentioned ones, if any recession is observed.

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