Dynamic Learning and Creativity in Entrepreneurship

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Abstract

Recession, instability, unemployment and the rapid pace of change give rise to a sense of uncertainty but also allow for opportunities for enterprising and creative activity, so we believe it is important to encourage creativity, a sense of awareness of own strength and value, self-initiative and responsibility. Most of the above is incorporated into entrepreneurial competencies and creative and critical thinking: it is necessary to strengthen the ability to recognise and track opportunities as well as to develop new ideas and to create and manage new ventures and acquire the necessary resources.

According to the dynamic environment, it is reasonable to create several differently oriented programmes at various levels of education. How can we tackle such an educational challenge? A dynamic learning model of creativity, innovation and entrepreneurship has been developed. We took into account the findings of research: the nature of secondary school (Vadnjal et al., 2011), the mode of education (Damian, 2010) and a wide range of technical and scientific articles (Gibb, 2002; Kuratko, 2005; Nonaka, Takeuchi, 1995 and others). The model encourages the strengthening of the entrepreneurial skills of individuals, groups and the social environment to change ideas into action. Education should encourage creativity, innovation and critical risk-taking as well as knowledge of planning, management and goal achievement. Students should be able to identify the problem and find adequate solutions to it.

Key words: model of dynamic learning, education, entrepreneurship

Introduction

In most enterprising and innovative individuals, we can observe some typical personal traits and abilities. Some they can develop themselves, while some they acquire through schooling (Timmons, 1999). The assertion that "An entrepreneur is born!" has no longer been considered true for quite some time. According to Drucker (1985): "The entrepreneurial mystique? It's not magic, it's not mysterious and it has nothing to do with the genes. It's a discipline. And, like any discipline, it can be learned." Shapiro from Ohio State University adds: "Entrepreneurs are not 'born', rather they 'become' through the experiences of their lives." These assertions are supported

by extensive research (Gorman, Hanlon, King, 1997; Kuratko, 2005; Plascka, Welsh, 1990, Vesper, Gartner, 1997 and others). Taking at least one entrepreneurship class increases the likelihood of the participants becoming self-employed or taking up a management role in companies (Charney, Libecap, 2003; Menzies, 2004) and causes a positive impact on their income (Charney, Libecap, 2003). People with a higher education level incorporate high-technology firms (Vesper, 1990).

Entrepreneurship education should not be confused with economic or business education, where specific knowledge of economics and management is disseminated. Entrepreneurship involves the promotion of certain personal abilities that provide the basis for enterprising activity and fostering self-employment as the choice of life/career. Naturally, at lower educational levels in particular, students learn about businesses as the core cell of product and service production or means of subsistence, learning about the logic behind the functioning of the economy and the role of entrepreneurs. However, this is not the key element of entrepreneurship education.

Knowledge-based success is a multi-dimensional construct of various variables and their specifics: personal traits, social environment and the possibilities of transferring personal potential (Heller, Perleth, Lim, 2005). The construct is based on *personal predispositions (talents)*: intelligence, creativity, social competencies, musicality, artistic abilities, psycho-motor skills and practical intelligence; *personal traits*: achievement and success motivation, achievements control and monitoring of expectations, knowledge drive, ability to cope with stress, other personal traits; *environmental factors*: stimulating creative environment, style of learning, attitude to success, family climate, social response to success and failure, classroom climate, life experience, differentiation of learning and instructions (Heller, Perleth, 2008).

Liao, Fei and Liu (2008) refer to authors who describe the learning process: as collection, interpretation and implementation of new knowledge (Kim, 1993), as collection, transmission and storage (Argote, 1999 in Liao et al., 2008), as collection, imparting, interpretation and storage of knowledge (Huber, 1991). Senge (1990 in Lee, Tsai, 2005) distinguishes between five factors that influence learning, i.e.: systems thinking, personal views, mental models, shared vision and team learning. A few years later, he establishes that the world has become more interconnected, business has become more complex and dynamic and work must become more "learningful". Learning in itself is a dynamic ability and future potential.

The fundamental condition for successful development and gaining of the competencies mentioned above is a high-quality and efficient educational system implemented by well qualified teachers (Peklaj, 2009). Thus, school is the crucial factor in the development of innovation and entrepreneurship and other key competencies of youth. They are directly influenced by teachers as implementers of educational programmes and school as a social community.

Competencies: creativity, innovation and entrepreneurship

To a certain extent, creativity, innovation and enterprise can be equated with entrepreneurship and self-initiative. Sense of initiative and entrepreneurship represents one of the eight key competencies that all people need for personal fulfilment and development, active citizenship,

social cohesion and employability. The competence of self-initiative and entrepreneurship is defined as "*an individual's ability to turn ideas into action*" and includes "*creativity, innovation and risk-taking as well as the ability to plan and manage projects in order to achieve objectives*". This supports individuals not only in their everyday lives at home and in society but also in the workplace (Official Journal of the EU, 2006/962/EC, L 394/17).

Essential knowledge, skills and attitudes related to this competence include the ability to identify available opportunities for personal, professional and/or business activities (such as a broad understanding of the workings of the economy and the opportunities and challenges facing an employer or organisation). Individuals should also be aware of the ethical position of enterprises and how they can be a force for good, for example through fair trade or through social enterprise. Knowledge in the scope of this competence relates to proactive project management, effective representation and negotiation and the ability to work both as an individual and collaboratively in teams. The ability to judge and identify one's strengths and weaknesses, and to assess and take risks as and when warranted, is essential. An entrepreneurial attitude is characterised by initiative, pro-activity, independence and innovation in one's personal and social life as much as at work. It also includes motivation and determination to meet objectives, whether personal goals or aims held in common with others. A respectable entrepreneurship researcher, Timmons, believes that entrepreneurs are characterised by dedication and decisiveness, self-reliance, inclination to take moderate risks, self-control and adaptability, creativity and management ability (Timmons, 1989).

The fact is that there are no "typical" individuals but rather various types of students who are characterised by various personality types and diverse sets of characteristics and actions. Stress has to be placed on the ability or skill development, especially communication (and persuasion), creativity, critical thinking and the ability to assess, manage, negotiate, solve problems, participate in social networking and manage time. Gibb (1987) attempted to present this.

Entrepreneurship topics in secondary schools

Secondary schools globally and in Slovenia alike include ever more tested entrepreneurship education programmes. Entrepreneurship topics are dealt with in the scope of educational programmes of secondary schools of economics, i.e. economics secondary school graduate, etc. In some cases, they form a component of the regular curriculum, while in others they are elective. A review of the numerous activities that promote creativity and entrepreneurship in youth in schools reveals that there are considerable differences among schools as regards the offered courses and even greater differences in their implementation. The people we have interviewed at schools are of the opinion that the available range of courses is greatly influenced by the school management and student structure, whereas the quality of activity implementation primarily depends on the teachers' commitment. In general, there are more opportunities for youth to express their creativity in general upper secondary school (*gimnazija*) than technical secondary schools (Damjan, 2010). Some schools offer opportunities for expressing and promoting creativity through various projects (Glas et al., 2006, Damjan, 2010), but that is not enough. Educational programmes make an important assumption, namely that a certain competence is not developed only within one course, but that teachers of all courses, especially technical ones, are responsible for competence development. A notable increase in innovative

andragogical approaches to teaching has been observed globally, encouraging innovation, creative thinking and a practical approach (Plaschka, Welsch, 1990).

In his research, Damjan (2010) analysed the answers of 255 teachers about the methods they use to promote entrepreneurial competencies in classrooms and schools. The answers were classified into seven categories, from general promotion of entrepreneurial competencies, stating practical examples and own experience, encouragement through exercises, analyses, preparation of various documents, various forms of team work (presentation, discussions, performances) and active learning techniques in the scope of the course, to very active forms of learning outside the institution. A review of the answers shows that more than one third of teachers are using active forms of teaching, allowing students to test in practice their ability to find new ideas and solutions. This greatly promotes creativity and enterprise. In statistical terms, these teachers include an increasingly higher number of those who wanted to become entrepreneurs themselves.

By examining various sources, we identified more than 20 different projects at the international, national and local level (Mladi podjetnik (Young Entrepreneur), Firma (Firm), TV, CUPS, Comenious and others) as well as voluntary initiatives for the promotion of creativity and enterprise among youth. There were also many initiatives to include youth into voluntary and other social activities so as to enable them greater integration in the local community and the development of creative and other potentials. Even though such projects are numerous and mainly focus on the promotion of entrepreneurship and creativity among youth, it can be concluded from the teachers' answers that they cover only a small part of the population at selected schools. Student participation is greater where there is stronger interest of the principal and teachers of technical subjects to cooperate and encourage students to be involved in active education (Damjan, 2010).

Dynamic model of encouraging creativity, innovation and entrepreneurship

We formed a model on the basis of the studied literature, research and experience. Llearning are closely related to formal and nonformal activities and experience. Education must be 1) connect with outside world, 2) foster and cultivate in-house innovation, and 3) keep record of past negative and positive experiences.The model integrates an individual student, courses, school and the social environment into a dynamic intertwined unit that promotes the building of creativity, innovation and entrepreneurship competencies.

The centre of the proposed model is a student living in a certain social environment and taking part in the learning process at a secondary school. The dynamic model integrates the student into the system and adapts to his/her abilities and the knowledge at his/her development stage. The model treats knowledge as a dynamic set of experience, values, context information and thoughts, offering a framework for valuation and inclusion of new experience and information.

The contents and activities that strengthen the competencies of creativity, innovation and entrepreneurship are used to influence active cooperation as well as substantive and social integration into activities personally, in technical subjects, at the school level and within the social environment. The existing knowledge is important as a source for identifying and seizing new opportunities. It influences the ability to collect, select and interpret information, which is

the intermediate stage in knowledge development. Information comes to life as it is interpreted and assigned importance and value by an individual. It is important to actively overcome challenges: first they are put within a framework, then the collection, combining and integrating of information is enabled along with argumentation aimed at improved understanding and assimilation of new knowledge. Knowledge is dealt with from two angles: 1) knowledge is possessed by an individual, group and community; 2) knowledge is tacit and explicit (Nonaka, Takeuchi, 1995). With tacit knowledge, people are not fully aware of the knowledge they possess and have difficulties articulating it and writing it down, but it still represents great potential. Explicit knowledge, however, is much more tangible and is easier to monitor and employ as a tool, process or rules. Still it applies that explicit knowledge is only useful when combined with an individual's own experience, contextual understanding and interpretation and then applied to activities.

Knowledge exists at the level of an individual, group, school or society. Zeithaml and Rice (1987) contended that education in entrepreneurship should cover diverse areas of business, and a field of study should take a broad, integrative, pragmatic and rational approach. The learning process should be designed so as to anticipate potential obstacles and provide advice on how to avoid them (Ronstadt, 1987).

Figure 1: Model of dynamic learning of creativity, innovation and entrepreneurship in secondary schools

A student is placed in an environment that motivates his/her entrepreneurial inclination (innovation, proactivity, competitiveness, independence, risk-taking) and understanding of the dynamics and events in the environment. There is not always a straight boundary between individual levels of the model, as they overlap. The model defines four levels (see image).
Goals and expectations are closely related with *motivational issues* such as self-efficacy, empowerment, and incentives to share information. The basic level represents the student as well as his/her knowledge, skills and characteristics. The ability to learn is connected to his/her behaviour and activities when faced with new experiences, circumstances and contexts. Learning is individual at first, and then through learning, an individual integrates the development and changes in the environment. Individuals' learning depends on perception, generalisations, observations and conceptions that influence how we understand the world and how we take action (Senge, 1990). Perception, values, beliefs and various experiences of individuals result in various responses. These responses are also influenced by pre-existing knowledge, skills, impact, resources and strength. A perceptual and conceptual framework is formed on personal level that restricts and dictates our thoughts, beliefs and feelings regarding when, where and why we learn. An individual learns when he/she senses a problem at a *cognitive level*, plans and selects criteria for problem solving and defines the steps leading to the solution. An individual has to focus his/her attention and control results. At a *non-cognitive level*, however, great importance is assigned to interests, goals, belonging, the appetite for knowledge and achievements (whether he/she has more faith in success than failure), the strategy of behaviour when under stress as well as the learning style and memory strategy.

The next level represents the subject and teachers of technical subjects, with relevance assigned to the inclusion and interconnectedness of various contents, the curriculum as well as teaching

methods. A wider framework constitutes the school with its programme, students, teaching and other staff, infrastructure and activities (extra-curricular activities, meetings, field trips, competitions, international and inter-school linkages) and the range of courses. The next level stands for the broader social environment of the student as his/her background and living environment.

The environment has to allow for active involvement of every individual. In an environment with an established culture of learning and creativity, the formal and non-formal building of competencies intertwine. These competencies enable a student greater independence, innovation and enterprise. The theory of informal or incidental learning is based on the early works of John Dewey (1938 in Marsick, Watkins, 2003), explaining the impact of school culture on learning. Learning requires space, opposites, differences, surprises, challenges and response. Individuals learn according to their rational and responsive understanding of the challenge.

People primarily win knowledge by grasping substance (Pečjak, 1977). We learn at a personal level, at the level of a group during courses, at the school level and even at the level of the community. The foundation of learning is individual learning. As individuals establish connections within an organisation, knowledge is upgraded and achievements arise, attributable not only to an individual but also a team. The ability to learn depends on individuals and the learning context (Garvin, Kagel, 1994). Learning at a personal level is often associated with the terms giftedness and talent – these two frequently overlap and arise from generic traits of an individual and environmental factors intertwined in varying ratios (Heller, Perleth, 2008). Heller – Hany's (Heller, Hany, 1986, in Heller, Perleth, 2008) model of success is based on personal traits, talent and the environment. At a broader level (subject, school, social environment), the learning process has to be supported by organisational structure, processes, etc. that support the entire learning cycle (Bessant, Francis, 1999) as well as by a suitable psychological environment that is determined by: supportive environment and environmental pressures exerted on an individual, socio-emotional climate, management relations as personal factors (e.g. life experience).

Learning at an individual level is similar to group-level learning. Nonaka and Takuchi (1995) stress the importance of cooperation. Typically, innovation is not the result of an individual but of groups within which individuals interact and upgrade knowledge into tacit knowledge of the group. Tacit knowledge of the group is the aggregate of individuals' tacit knowledge, which is released and balanced with soft teaching approaches such as establishment of mutual trust. Knowledge, knowledge creation and innovation are related to a broader social context of autonomy, giving of draft instructions, team work and encouraging individuals to identify with the task.

Individual learning is in the interaction and dynamics of the social environment. School as the entity where knowledge is formed is a dynamic unit, connecting various activities, extra-curricular and curricular, while interacting with the environment. It is based on epistemology – *how to know* and ontology – *what one exists for* and incorporates values, context, strength and dynamics of processes for knowledge creation through the interaction of subjectivity and objectivity embraced by the social environment. Information gathering incorporates monitoring of the environment and intelligent data processing as well as their

integration and connection into the system. The culture that the schools represent influences behavioural changes, efficiency and success and challenge acceptance. It enables new learning techniques and methods. Celantone (2002 in Lee, Tsai, 2005) proves the connection between the drive for knowledge, innovation and success. From learning springs new ideas. Learning is the most important resource to achieve competitive advantage. Knowledge has to be created. Knowledge creation does not merely constitute a response to information. Knowledge is created through interaction among individuals who have various experiences, values, positions and abilities to learn, through information processing, decision making and activities. This combines: information, know-how and everything learned.

Schools should establish connections among themselves and provide for learning in networks in several ways: *1)* a school builds networks in the sense of complementary connection. In this case, students learn about specific reactions of partners, various roles of individuals and their willingness to adapt. They learn how to adjust activities to reach common efficiency; *2)* interaction within relations among partner schools allows for building of shared skills that are used and transferred into other relations. How to gain a partner, how to keep in contact and various actions that strengthen relations. These could be referred to as experience in relationship building; *3)* the third type of learning represents coordination – how to coordinate activities with a partner in relation to other connections; *4)* the fourth type is a combination of the above – a school learns how to build a new network.

A school formulates a model of its environment to improve the knowledge creation processes and ensure long-term development. The ability to recognise opportunities depends not only on the existing knowledge but also on the processes involving the collection and transformation of information into knowledge (learning). The diverse knowledge of individuals and groups impacts the varied identification of opportunities. Combining compatible skills with partners' knowledge results in a unique learning opportunity. Students acquire much knowledge through informal ways. Marsick and Watkins (2001) and Timmons (1999) believe that the majority of knowledge is gained through informal learning methods and only a smaller part through formal learning. New knowledge is incorporated into an individual's knowledge. This changes with time and is also reflected in altered behaviour and understanding.

Learning process

A learning process includes processes from *input*: pre-existing knowledge and experience; *content*: content of the subject or programme or purpose; teaching *methods*, which have to focus on an individual's characteristics; and the *result*, defined by the knowledge of an individual, benefits, values and positions. The following is important when it comes to shaping the learning process: 1) creating a vision of knowledge; 2) directing communication; 3) mobilising teachers and other educators; 4) forming appropriate contexts; 5) expanding existing knowledge. The following is relevant in groups that develop new products (Akgűn et al., 2005): 1) creating a group consisting of individuals with various views, plans, functional backgrounds and positions who have to connect their discoveries and ensure mutual interaction; 2) coordinating team processes (resolving conflicts, motivation, team work); 3) pursuing goals that have to be attained.

In a learning process, we should consider the greater scope of available information, the

communication technology capacities and the possibility of combining information. Be it individual or group learning, the process always includes individuals, and while learning by each individual is important, it is not sufficient (Kim, 1993). Exchange of information has to be targeted (Nadler, Tushman, 1999). It will only be successful if information is, within the context of other participants, allowing for feedback to be provided, modification and forwarding a new view to the sender.

During the learning process, the group upgrades its knowledge and capacities (key abilities and competencies) as well as the ability to assimilate and apply new information. In addition, its behaviour and values change and organisational memory is created. A group that receives knowledge must have sufficient absorptive capacity (Cohen, Levinthal, 1990), which depends on pre-existing knowledge, understanding, organisation, connections, available technologies and the ability to use innovation (Autio et al, 2000; Zahra, George, 2002). The pace of learning also depends on the ability to assimilate, the learning drive and learning abilities.

Group-level learning is an interactive process, a group experience. By learning, an individual affects others' learning and thus the knowledge of the group. Thereby, a mechanism is established, enabling, supporting and upgrading the use of knowledge. At school, there is interaction among individuals, groups as well as enterprises and other associated organisations. In the framework of interaction, the individual is the agent who influences the thinking, activities and learning of others (Marsick, Watkins, 1993). Social capital is important. If a group wishes to accept novelties, there must be trust among its members and willingness to share knowledge.

Entrepreneurial learning is multi-dimensional: understanding the causes and strengthening of analytical skills, the ability to have a critical, independent perspective when looking for the best solutions and practice. It represents the opportunity of in-depth learning to acquire specific knowledge, gain the ability to find and quickly obtain the information necessary as well as to use it efficiently and the ability to employ the latest technology to organise and search for information. It also triggers the need for further learning and life-long learning, communication and team work.

Work methods

That is why, when introducing entrepreneurship into the schooling system, it is not only the substance of teaching that is important but also the ***teaching methods***, requiring intensive teacher training, inclusion of successful entrepreneurs in the teaching process, various student activities and an appropriate infrastructure for teaching entrepreneurship as well as developing students' entrepreneurial ideas. The theories of group teaching refer to two fundamental mechanisms that drive the teaching process: knowledge communication and combination (Cohen, Levinthal, 1990; Kogut, Zander, 1992). Communication allows for the transfer of knowledge between individuals as well as within and between groups. Improved communication enables better knowledge exchange. According to Schumpeter's theory of innovation, which states that an entrepreneur creates innovation through a novel combination of resources in the economic system, knowledge is formed primarily by combination and creation of new associations among findings. Combining external and internal knowledge as well as market information about the business environment and technology enables the development of new products and concepts

(Autio, 2000). Both communication and combination involve social processes, and social capital as the regulator plays an important role (Autio, 2000). The shaping of a comprehensive entrepreneurial education system is a demanding task, but such a strategic approach is preferable and practical, offering each person the opportunity to become familiar with the entrepreneurial contents and actions at various educational levels, which is important to activate material potential for economic development.

Group knowledge plays an important role. It is built through the knowledge evolution cycle, through stages where group members generate ideas about how to face a problem, reorganise and tackle new challenges (Zollo, Winter, 2002). Initial ideas representing the early start are primarily tacit, subject to internal assessment and the pressures arising from existing experience or novel challenges. Possibilities arise due to expected advantages from change introduction and the implementation of the activities necessary to articulate, analyse and discuss. Initiative is taken with moderate risk. The next stage is reflected in a series of organisational activities aimed at forwarding information to related parts within the organisation. Information is intended for gaining new perspective and building of competitive advantages (Winter, Szulanski, 2002 in Zollo, Winter, 2002). This is followed by the evaluation and selection of ideas as well as application. The overall learning environment plays an important role in the entire process.

Individual and group learning should be connected (Kim, 1993). Huber (1991) describes the following processes: collecting and distributing information, interpreting and storing information. High awareness of the importance of learning enables the flow of information from the environment (Huber, 1991). Group learning is impacted by internal rules, memory, values, relations, connections and structures (Mejer 1982 in Marsick Watkins, 2003).

Lecturer

In practice, entrepreneurship teaching encompasses obstacles that are challenging for competent teachers (Rice, Rice, 2005). It is important who lectures and how (Rohnstadt, 1987). A significant role is that of interaction among entrepreneurs in training, where they exchange experience, stories, ways of thinking and methods of solving problems (Kuratko, 2005). Gathering hands-on experience in the real world is crucial for cooperative learning (Garavan, Murphy, 2001 in Antončič et al. 2007).

Trainers should not focus merely on "what is" and "what was" but should rather provide training on how to get the work done. Paajanen (2001 in Römer-Paakkanen, 2006) speaks about the ideal model of a teacher in the learning process: 1) a teacher should also work like an entrepreneur, being creative, dynamic, risk-taking, initiative oriented, hard-working and action motivated; 2) a teacher should possess a positive attitude towards entrepreneurship, which means appreciating market economy, business life and entrepreneurs' work; 3) a teacher should develop knowledge, skills and attitudes needed in business life; 4) a teacher must adopt modern entrepreneurial paradigms.

Infrastructure

Efficient learning requires that cooperative environment and infrastructure are established. Senge

et al. (1999, p. 425) defines learning infrastructure as: "ways of organising resources and opportunities to promote regular reflection and sharing". Infrastructure has to enable (Alavi, Leidner, 2001): 1) articulation, coding and transmitting knowledge, 2) creating knowledge in school; 3) creating knowledge networks in the school and social environment.

The organisation of infrastructure must allow for efficient team work, creativity, positive attitude, self-confidence and a favourable environment to be supported by sufficient technological equipment, knowledge banks, libraries, continuous training and meetings.

Contents

The contents of training have to be tailored, understandably presented, properly structured and simplified so that they are suitable for the widest possible circle. As regards entrepreneurial contents, the connection between an entrepreneur's traits and the required professional knowledge is important. This has to be combined when the contents of a subject or programme are drafted. Thus, creativity is linked with market orientation, intuition and vision, whereas self-reliance and communication skills, the characteristics of a manager, are associated with contents pertaining to management. Entrepreneurship education has to include the acquisition of skills related to negotiation, management, new product development, creative thinking and the drive for technological innovations (Vesper, McMullen, 1988). The following represent important substance fields: career as opportunity (Hills, 1988), risk capital resources (Vesper, McMullen, 1988; Zeithaml, Rice, 1987), protection of ideas (Vesper, McMullen, 1988), tolerance (Ronstadt, 1987), characteristics defining an entrepreneur's personality (Hills, 1988) and challenges related to specific development stages (McMullan, Long, 1987; Plaschka, Welsch, 1990). Training in entrepreneurship is a process of training individuals that is related to the concepts and abilities necessary for identifying opportunities that others miss and to a drive for action (Kuratko, 2005). The integration of an individual's characteristics and skills as well as of the chapters pertaining to the life cycle in the first development stages of an organisation distinguishes entrepreneurship education from other business education programmes (Solomon, Duffy, Tarabishy, 2002). The differences in needs also arise from entrepreneurial experience, field of work and size of an organisation. There are also great differences between individuals entering into business.

Conclusion

The article presents a dynamic model for encouraging creativity, innovation and entrepreneurship and includes several scientific and expert findings as well as a series of partial research studies and experience. The model has to be adapted to individuals and groups, their knowledge and motives. How to implement a combination of individual factors is best tested on a pilot group and then integrated into regular training and educational processes through regular school programmes for youth. Nevertheless, the importance of the model as regards adult education must not be neglected. Such a model has special meaning in the training of those who already have experience due to which they are more inclined towards communication, absorption and in particular merging and combining new knowledge with pre-existing knowledge.

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